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Dr. Crawford W. Long Discoverer of Ether Anesthesia

AMONG the notable examples of the folly of failing to publish important discoveries for the benefit of the profession is the case of Dr. Crawford W. Long.

Captain Samuel Long, of Pennsylvania, was one of Gen. Lafayette's officers at Yorktown and distinguished himself during the American Revolution. His son, James, was a lawyer in Danielsville, Georgia, at the time when Crawford, the grandson of the Revolutionary hero, was born, on November 1, 1815.

Young Long received the country schooling customary at that period and then attended Franklin College (now the University of Georgia) where he was graduated in 1835, at the early age of twenty. A year or two later he took up the study of medicine at the University of Pennsylvania, receiving his degree in 1839.

After graduation he began to practice in New York, where his ability and surgical skill soon brought him an excellent reputation, in spite of his youth. This, however, lasted only two years, when his family became so insistent that he returned to his native state and established himself in the village of Jefferson. The following year (1842) he married Caroline Swain, the

daughter of the Governor of North Carolina.

Long was a genial young fellow and the other "bloods" of the town made his office their "hang-out" in the evenings. Not unlike the members of the present generation, they appear to have been looking for new sensations. They had heard of the exhilarating properties of "laughing gas" and importuned their medical friend for a chance to try it. Having no nitrous oxide at hand, Long suggested that they might be able to get drunk on the fumes of sulphuric ether. This they proceeded to do, to such good purpose that several of them were rather severely battered.

The doctor, being a man of keen observation, remarked that, though some of his friends had ugly bruises they appeared to suffer no pain. This suggested that the ether fumes might produce a benumbing effect on the sensorium and led him to further experiments.

On March 30, 1842, Mr. James Venable came to him as a patient, having a small cystic tumor on the back of his neck. Dr. Long decided to try out his idea. He saturated a towel with sulphuric ether and held it over the patient's face until he ap-

peared to be unconscious, and then proceeded to the removal of the tumor. To the patient's immense surprise and the doctor's equal gratification, the operation was completed without causing the slightest pain. His modest fee for this epoch-making operation, including the ether, was \$2.00!

During the next two years, Long performed a number of operations under ether anesthesia, inviting other physicians to witness them, and he recommended its use to many surgeons of his acquaintance, notably Drs. R. D. Moore and Joseph B. Carlton, of Athens, Ga., who were prepared to try it in one of their serious cases but were unable to do so because no ether was available at the time.

Dr. Long was possessed of that professional diffidence which is so high a tribute to one's plane of scientific thinking but so disastrous to one's fame. Who was he—a youthful and unknown country doctor—that he should startle the medical world with a revolutionary discovery? He thought it best to wait until the value of his method was fully demonstrated at the hands of older men before he reported it. So he went quietly on with his work unknown to those outside his own county!

Others, however, were interested in this drug, and two years later Dr. Horace Wells, of Hartford, discovered its anesthetic properties and spoke of them to William T. G. Morton. This enterprising young dentist, recognizing a fact of importance, proceeded to make his reputation when, on September 30, 1846, he extracted a tooth painlessly, the patient being under the influence of "letheon," which turned out, on investigation, to be nothing but sulphuric ether, disguised with odorous oils and coloring matter.

Had Long published his discovery promptly, no one could have questioned his priority, but it was not until 1849, after Wells, Morton, Jackson and others had made use of ether, that he gave the facts to the medical journals. As a result of his tardiness, a long controversy as to whose was the original idea arose, and this was not settled until, in 1877, Dr. J. Marion Sims, after an exhaustive examination of the evidence, announced Dr. Long as the discoverer of anesthesia.

The quiet, modest, country doctor, who had not realized the importance of his work, lived but a short while to enjoy the

honors which came to him after his position was established. He passed away on June 16, 1878, at the age of 63 years.

But fame has continued to be busy with his exploits. In 1910 an obelisk was erected to his memory in the city of Athens, where he had spent his later years; and on March 30, 1926, the anniversary of his first historic operation, a statue of him was unveiled in Statuary Hall, in the Nation's Capitol, placed there by the State of Georgia, thus recognizing him as one of her two most famous sons.

It would be foolish counsel to recommend that physicians rush into print with half-baked ideas, but the story of Dr. Long suggests that when a man really has something to say he should say it promptly, for his own sake and for the sake of the profession and of humanity in general.

Knowledge is useful only if it helps you to live and serve.—Annie Besant.

MOSQUITO CONTROL

Mosquitoes have caused more deaths and crippling among human beings than have all the lions and tigers and poisonous serpents in all the jungles of the world. The world's death list from malaria and yellow fever has been appalling—and still is.

In many parts of the world the mosquito is a deadly foe to man. Everywhere it is a nuisance and a constant source of potential danger.

Mosquito control falls into two general classes: Large, general measures, such as stocking of ponds with certain species of larva-eating fish, establishing bat shelters and oiling standing water on a large scale; and the smaller, local measures which can never be undertaken by wholesale. The former work must be done by the health authorities, local, state or national; the latter by individual householders, under the instruction of persons who know what to do.

In most of the smaller communities, if the people are to receive any instruction at all in mosquito control it must come from the physicians. This has been, on the whole, a wet year, in most parts of the country and *culex*, *anopheles*, *stegomyia*, with their friends and relatives, will gobble us up alive—and maybe give us malaria—if we don't watch out.

Mosquitoes can breed in surprisingly little water, but they must have some. An

empty tin can or a broken bottle on the trash heap will serve as a nursery for a large brood. Any puddle of water, however small, which stands for a week or ten days may be a breeding place. Such places may even be found inside the house. We have seen a vase of flowers which had stood longer than usual and a toilet bowl that had not been flushed for a week swarming with mosquito larvae.

High weeds and grass, unless they hide puddles, discarded cans and such like, will not give mosquitoes a chance to breed, but they make a fine harboring place for the insects and encourage them to stay in the vicinity.

The keynote of the whole campaign is, **CLEAN UP**. Cut all weeds and grass on the premises (thus, perhaps, uncovering surprising things); permit no rubbish to accumulate; if cans must necessarily lie out for a time, crush or perforate them so they cannot hold water; fill or drain all holes or low spots or, if they are too large for this and the health department is negligent, oil them with crude oil or kerosene; tightly screen or oil all rain barrels and cisterns; watch for breeding places, outside and inside, every day, and *keep after them*; screen all windows, or at least, screen the beds so that sleepers are protected.

These suggestions may not cover the whole ground, but they point in the right direction and should lead thoughtful persons to make new discoveries in the exciting sport of mosquito chasing.

If every physician will first look to these matters himself and then instruct his patients regarding the dangers of mosquitoes and the measures for controlling them, our land should be a healthier and happier place in the summer time.

He who waits to do a great deal of good at once, will never do any.—Dr. Johnson.

THE LEUCOCYTES

A number of years ago that wise Russian biologist and investigator, Prof. Elie Metchnikoff, announced his carefully considered opinion that the white cells of the blood, the leucocytes, were the chief, if not the sole, defenders of the body against the ravages of bacterial infections.

Then came Ehrlich with his fascinating complicated side-chain theory of immunity and, because many scientists seem to think that an idea is true and valuable in pro-

portion as it is difficult to grasp, Metchnikoff's simple and straight-forward teaching dropped almost out of sight.

Now that the importance of the leucocytes in the prevention and cure of infections is being studied and talked about again, it may be well to consider the subject briefly.

It is needless to insist upon the fact that the leucocytes have the power of devouring and destroying bacteria. Their phagocytic activities have been observed so often, by so many investigators, that there is now no room to doubt that this occurs.

About 1910, Wright demonstrated that phagocytosis of particular organisms was greatly increased after the animal had been immunized against these organisms. He gave the name *Opsonins* to the substances which so acted upon the bacteria as to render them more readily phagocytized, and proposed to determine the degree of immunity by ascertaining the "opsonic index" of the blood. This idea caused a good deal of excitement for a time.

It is a matter of universal observation that, in the presence of bacterial infections, there is always an increase in the number and activity of the white cells, and that a favorable prognosis depends upon the appearance of a rapidly developing and considerable leucocytosis. In such infectious diseases as appendicitis and erysipelas, a low leucocyte count shows that the condition is grave and that danger is to be expected; while a high count proclaims that, while the infection is severe, the defensive forces of the body are rallying to meet it and will probably overcome it.

It has also been noted repeatedly that as a patient recovers from an infection the number and phagocytic activity of his leucocytes increases until the infection is controlled, subsiding as the infectious process retrogresses.

There are, however, patients whose defensive powers are weakened by toxic states, disturbed metabolism, endocrine disorders, fatigue or some other abnormal condition to the point where their bodies do not respond to infection by the production of an active leucocytosis. Such patients frequently succumb to an infection from which a normal man would readily recover.

It has been known for many years that the heavy metals, especially arsenic and mercury, are of the greatest assistance in treating infectious conditions. They have

been given by mouth in such cases from the time of our forefathers. Twenty years ago the cacodylates, atoxyl and succinimide of mercury were given parenterally in tuberculosis and many favorable results were reported.

The use of mercury, arsphenamines and bismuth in syphilis is familiar even to high-school students, and the more recent exploits with mercurochrome, metaphen and similar drugs are known to all physicians.

Because these powerful metallic combinations were actively germicidal in the test tube, it was at first assumed that their action in the body was a similar one; i. e., that their curative action resulted from killing the germs in the blood and tissues. Further study, however, convinced many thoughtful men that there was something more than mere germicidal effects—some changes in the body's structure or functions which aided in bringing about the desired results, if not the sole cause of them.

Recent studies have shown that all of the drugs which, when injected into the blood or tissues, assist in overcoming infections (arsphenamines, mercurochrome, metaphen, foreign proteins, etc.), cause a more or less marked and rapid increase in the number of leucocytes.

It seems reasonable to believe that, when a man's body is unable, for any reason, to react to infection by the development of leucocytosis, if we can stimulate the production of white cells we shall be able to give him needed assistance at a critical period.

There seems reason to believe, on the basis of clinical experiments which have been carried out in the last few years, that any of these leucocyte-stimulating medications, when given parenterally (preferably intravenously) to a patient suffering from an infection of any sort, will cause a prompt and positive amelioration of his condition and generally lead to a rapid cure.

Of course, the case for the leucocyte as the chief or only natural defense against infection is not yet proved, but the weight of evidence behind the suggestion and the number of noted students who have entertained it are sufficiently impressive to cause us to ponder it well and enter upon some clinical experiments of our own in this direction. If the idea is wrong we can do little harm; and if it is right it may cause

radical changes in our ideas of infection and immunity and in our methods of treating these cases.

In the practical affairs of life, it is often safer to work in the dark, knowing it to be dark than to mistake the halflight of theory for the mid-day glare of truth.—W. F. Shearcroft.

CASTOR OIL

Oleum Ricini or castor oil, is a fixed oil obtained from the seeds of the rapidly growing tree *Ricinus Communis*, which is a native of India but is now grown extensively in the United States. The oil is pale yellow, viscid and has a characteristic odor and taste which is very unpleasant to some people. It consists chiefly of *Ricinolein*, a glyceride of ricinoleic acid, and contains also minute quantities of a highly poisonous substance called *Ricin*.

Physiologic Action.—Used externally, castor oil is perfectly bland and unirritating. When given internally it is wholly non-irritating until it reaches the *small bowel* where it is saponified by the *alkaline juices*, setting free ricinoleic acid, which stimulates the intestinal glands and the muscular coat, increasing peristalsis. It has no effect on the liver, other than a mechanical one.

Its oily nature probably accounts for part of its purgative effects but not all, for it will act as a purge when applied by inunction in sufficient quantities, and the ricinoleic acid enters the blood and secretions so that it imparts purgative properties to the milk of lactating women.

Purgation occurs in from 4 to 6 hours after giving a dose of castor oil and is sometimes accompanied by considerable griping and tenesmus. If used regularly it tends to induce hemorrhoids by causing rectal congestion, and the cessation of its administration is likely to be followed by obstinate constipation.

Its purgative effect is enhanced if a moderate amount of sodium bicarbonate or glycerin is given with it. The purer specimens of the drug are milder in effect, in proportion to their purity.

Therapeutic Uses. *Internally.*—With the sole exception of magnesium sulphate, castor oil is the blandest and least irritating purgative at our disposal.

When symptoms arise from the presence in the intestinal canal of decaying or fermenting food, castor oil is the ideal remedy for the removal of these offending sub-

stances. It is therefore the first thing to be given in the fermentative "*summer diarrheas*," as it clears out all noxious residue as well as collections of mucus which may be present, thus giving other remedies a chance to reach the mucosa of the gut. Its secondary constipating effect is also desirable in such cases.

If the patient has swallowed *hard, irritating substances*, such as broken fruit pits, bits of bone or the like, castor oil, because of its lubricating properties, is superior to magnesium sulphate for their removal.

In *dysentery* it clears away the infected secretions without adding to the irritation. In such cases it should be given with 10 to 20 drops of laudanum or paregoric to lessen the pain and tenesmus and, if symptoms of collapse are present (low blood pressure and a dry, glazed tongue), 5 drops of oil of turpentine may also be added.

Castor oil has an old and well-deserved reputation as a *postoperative purgative* as well as for use before and after *parturition*, but should be applied with judgment, as it has been much abused by the laity and also, sometimes, by physicians.

Externally.—Castor oil is a valuable *surgical dressing*. A pure specimen is an ideal conjunctival application when *lime has entered the eyes*, and it makes an excellent vehicle for other ocular medications.

With 2 to 5 percent balsam of peru or 5 to 10 percent ichthyol it is a very satisfactory dressing for *ulcers* and *granulating wounds*; and with the addition of a few drops of oil of eucalyptus, or even plain, it may be used as a protective following *burns*.

Administration.—Because the taste and the heavy, oily consistency of castor oil are decidedly unpleasant to most people, special efforts should be made to make its administration as little obnoxious as possible.

It may be given to adults in flexible capsules (which should be moistened before taking, to make them slippery) or floated upon fruit juice or strong coffee or in cream. It is inadvisable to use these vehicles for children lest they acquire a distaste for salutary articles of diet. Oil of bitter almonds disguises the taste nicely.

The nerves of the mouth may be obtunded by having the patient hold cracked ice in the mouth for a few moments, or chew a few strong peppermint drops or a

very sour pickle before and after swallowing the dose.

One of the *best* methods for giving castor oil is to place the juice of a lemon in a glass with the oil, and in another glass dissolve half a teaspoonful of sodium bicarbonate and a teaspoonful or two of sugar in 3 or 4 ounces of water. Pour the contents of the second glass into the first, stir vigorously and drink while actively effervescing.

Dosage.—The average dose of castor oil, for a child, is 1 to 2 fluidrams (4 to 8 cc.) and for an adult $\frac{1}{2}$ to 1 fluidounce (16 to 30 cc.). Smaller doses will sometimes do the work. A few drops of laudanum, paregoric or tincture of belladonna or a drop of oil of cinnamon will inhibit the griping.

Castor oil is a drug which has been widely used (and widely *abused*) in domestic medicine, but its virtues and limitations should not be lost sight of by the resourceful physician. As a surgical dressing it is not used so frequently as its merits deserve.

The early "medicine men" tasted the barks and roots they found in the woods. Those that tasted good they took for food; those that tasted bad, for medicine.—Dr. Edwin E. Slosson.

FORGET IT

At the end of the day our supply of energy is at a low ebb, whether we realize it or not, and we require a night's sleep, during which we forget our cares and our problems, to rest and refresh us. If we do not achieve forgetfulness during the dark hours, sleep is fitful and we arise jaded and stale.

There are a few fortunate ones who are so wedded to their work that every day is a grand adventure; and who pass into complete unconsciousness as soon as their heads touch their pillows. These enviable persons may not need to take vacations. The rest of us do!

With life as complicated and strenuous as it now is and with many pleasures or duties calling us to use the night for work or play, comparatively few people are getting all the sleep they need. The result is that each morning we arise with our energy balance a bit more depleted than it was the day before. If, in addition to this, we spend Sunday—which should be a day of whatever kind of "rest" we need, in order to redress the balance—in the same kind of living as the other days, we are greasing the skids.

Most of us need a change which will cause us to forget our ordinary worries during a few weeks of every year, if we are to keep sane and serviceable to a green old age. If we rush from one job to another, like a fire engine going to a fire, during eleven months of the year, we need to go to some quiet, lonely spot and fish and smoke and sleep and eat—not even think, much or hard—for the other month.

If our workaday life is somewhat dull and monotonous, with little gaiety or color, a few weeks of people and shows and dances and white lights will prove highly invigorating and give us a store of memories to brighten up gray days.

If you haven't taken your vacation so far, take it now. Your community will manage to worry along without you for a little while; your patients will not all recover during absence; and your wife—though she wouldn't admit it under torture—will welcome a brief respite from your presence and love you better when you come back.

Above all things, forget the riddles and the struggles in which you are entangled every day, otherwise your vacation will not rest you as it should. No one of us is Atlas, that we must hold up the world. It is probable that if you lock your difficulties in your office while you are away you will find, when you return, that, viewing them with the unblurred perspective of a stranger, you will see the answer better than you could have done if you had been watching them every minute.

Lock up your troubles, go fishing and forget it!

I like to have a man's knowledge comprehend more than one class of topics, one row of shelves. I like a man who likes to see a fine barn as well as a good tragedy.—Emerson.

CAPITALIZING PERIODIC EXAMINATIONS

If physicians, all over the country, do not wake up to the possibilities and necessities of periodic physical examinations quite suddenly they will find that, when they do turn over sleepily and begin to rub their eyes, someone else will have run off with all the cake and jam.

The people are beginning to want health surveys, and when that happens there will be no lack of those who are eager to give

them "something just as good." And if we don't tell them the difference they will believe that the commercial substitute really is just as good—to their undoing, perhaps.

A good many people believe that a uranalysis is all that is needed to find out what is going on in their insides. Several life insurance companies are now offering that service, gratis, to their policy holders. Here in Chicago an organization has been formed which offers to make several uranalyses for its "members" yearly—at a charge of \$10 or \$15 a year. This "Bureau" is advertising its services in *Physical Culture* and similar publications which are ready to exploit all sorts of quackery and a good many otherwise-sensible people are paying good money for their "reports."

In the first place, it should be remembered that, for a urinary report to be of any value to anyone the tests must be made by a thoroughly competent and reliable person. When specimens come in by wholesale, from people who are known merely by numbers, the temptation to make the time-(dis)honored "sink test" must be very strong—especially when it is purely a commercial proposition.

In the second place, there are many serious and insidious maladies which may advance to an irremediable stage without showing any evidence in the urine. A complete examination is the only reliable health survey.

The public should be promptly and thoroughly informed on those two points.

The ideal person to make periodic health examinations is the family physician, provided he has made the not excessive effort necessary to do it properly. He knows the man's family, history, and personal peculiarities and can evaluate his findings intelligently. If his patients are satisfied with a uranalysis (which they should not be) their own doctors can make it just as accurately and probably far more reliably than it will be made by any "Institute" or "Bureau," and the cost will be more in proportion to the value of the services rendered.

The alarm clock has gone off! If we don't get up and get busy, for heaven's sake, let's not "bellyache" about the "serious economic difficulties of the country doctor" when someone else walks off, unhindered, with what is properly ours!

Leading Articles

The Leucocytes in Infection and Immunity*

An Application of the Teachings of Metchnikoff

By BURR FERGUSON, M.D., Birmingham, Ala.

WHILE in the medical service of the Tennessee Coal, Iron and Railroad Company, the writer began, in 1915, the treatment of furunculosis, indolent ulcers of the leg, and acne vulgaris, with intramuscular injections of 1 grain of salicylate of mercury, usually with prompt relief of the infection. This procedure was adopted because of the remarkable effects seen in any syphilitic infection of the skin, following the use of mercury; and since its influence seemed so direct in the syphilitic lesions, no reason could be thought of to hinder the action of the same potent influence in the pyogenic infections.

This empirical use of mercury was continued for pyogenic infections in a field organization in the Army and in surgical work in Siberia, in the service of the American Red Cross. The consistently good results were seemingly satisfactorily explained by the alterative or germicidal value that this drug was said to have, though how and what was "altered," or how one grain of mercury could exert its poisonous influence for several days was not explained in any system of therapeutics known to the writer.

In September, 1923, a case of draining sinuses in the axilla, five weeks after surgical interference, was seen in Southampton, England. Mercury salicylate, 1 grain, was given. When seen the next day the sinuses were completely closed. A negative Wassermann test failing to explain the reason of the prompt improvement, the writer determined to learn what change might be found in the white blood cells after the administration of this drug.

Dr. Harry Simson, Borough Pathologist, Southampton, made a white-cell count of the writer's blood, finding 9,000 per cmm., and gave an intramuscular injection of 1 grain of salicylate of mercury. Another

count, twenty-four hours thereafter, showed 18,600 per cmm. During the following week, Dr. Simson made a number of counts before and after the administration of the salicylate, using patients in the isolation hospital for his determinations—a number sufficient to convince us of its consistency in stimulating the production of the white blood cells.

In the report made by the writer and Dr. Simson before the Southampton Medical Society, it was stated that if we might attribute to the white cells an active, or perhaps a leading part in the treatment of syphilis and the pyogenic infections, no reason was apparent why these cells might not be valuable in the treatment of any infection.

During the following two years the results from the application of this idea were satisfactory in a wide range of infections, the several developments being reported from time to time in various London journals and in the *Medical Journal and Record*, New York.

Theories of Immunity

In September, 1925, when the writer was medical officer in charge of the United States Public Health Service station in Rotterdam, a copy of Metchnikoff's "Immunity in Infective Diseases" was found in Paris. The many reported determinations of this author, showing the activity of the white cells in resistance, gave to the writer a lucid explanation of the results of about ten years of clinical observation in the application of the principle. Metchnikoff also gives a full report of the discussions on the theories of resistance to pathogenic organisms, which divided the profession in Europe in the closing years of the last century.

In his development of the principle of the phagocytic activity of the white blood cells in the resistance and the many dis-

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cussions in which he maintained that he had proved that the principal factor in immunity, whether innate or acquired, was this purely natural function of these mobile cells, he had little or no support. The preponderant opinion of the leading medical men of the day inclined to and followed Ehrlich in his theory of the humoral qualities of the blood stream.

The past twenty-five years have seen an exhaustive trial of the idea of the addition of specific antitoxins and antibodies to the plasma. Results attending the application of this principle of specific therapy not having been altogether satisfactory, this plan has been somewhat supplanted by the theory of the germicidal effect of injections of a poisonous agent for its inhibitory or destructive action on invading organisms. This school, under the leadership of Dr. Hugh H. Young, has apparently based its belief in the germicidal theory upon the very consistent results that have followed the use of mercurochrome in the treatment of many and diverse infections.

Clinical observations in the use of the arsenical and mercurial preparations have sought to establish these agents as the great sterilizing factors. However, Dr. Carl Voegtlin, of the Hygienic Laboratory, U. S. Public Health Service, reported lately that arsphenamine in concentrated solutions will not kill the treponema in a test tube, but advanced the belief that its poisonous character is increased by a process of oxidation or other unknown change in the blood stream.

In the light of clinical experience the foregoing theory can hardly be maintained, for it is a matter of common observation that the effects following the administration of mercury and arsenic continue for a week or more, and it would appear improbable that this oxidation persists for such a period. Were it so, such changes in the blood stream would be demonstrable. Since the foregoing determinations, as well as clinical experience, made the germicidal theory doubtful, a consideration of the conclusions of Metchnikoff in his study of the mechanism of resistance might prove worth while.

Work of Metchnikoff

In his "Immunity and Infective Diseases," many determinations are reported in which it is proved that there is a concentration of white cells and increase in their numbers at the point of the inva-

sion of most of the harmful microorganisms; that these mobile cells have the power of engulfing and digesting bacteria, so that in any case of successful resistance the invading bacilli are no longer to be found; and that the white cells are the active agents in the demolition of pathologic tissue and the principal factors in repair.

A definite proof of the resistant action of the white cells is given in his observations of the effect of the injection of a culture of anthrax bacilli in chickens. This fowl is immune to this organism, as was proved by the fact that after an injection of these infectious bodies the first chicken experienced no ill result. The second fowl was given the same amount of the culture as the first, and after the injection was held in a basin of very cold water, thus inhibiting the activity of the white cells. This chicken died from the anthrax infection, and the microscope showed little phagocytic activity and a great increase in the numbers of the anthrax organisms. The third chicken was given morphine after the injection of the culture, this agent also showing the function of the white cells. This chicken also died from anthrax infection, as had the second fowl.

As a prophylactic measure, Metchnikoff was accustomed to stimulate the production of the white cells by injections of broth before all abdominal operations on laboratory animals, the proteid reaction having a demonstrable effect on the increase in number and activity of the white blood cells.

Modern Confirmation

Confirmation of the truth of the conclusions of the great Russian observer is apparently readily furnished by the effect of mercurochrome, metaphen, arsphenamine and quinine, in their action in the stimulation of the production of the white blood cells. The intramuscular or intravenous administration of any one of these agents is, with but few exceptions, immediately followed by an increase in the number of the white cells. This increase is maintained above the normal count from forty-eight hours or somewhat less, after quinine, to ten days after arsphenamine.

Further confirmation of the stimulation of the white cells by other drugs used in the treatment of infections is furnished in the report of Dr. Seager Thomas, pathologist to the South Hants Hospital,

Southampton, England, read before the British Society for the Advancement of Learning in 1925, in which he cites the results of determinations made in association with the writer, in which we found that hypodermoclysis of normal salt solution, stock and autogenous vaccines, the injection of one's own blood, whisky by the mouth, iodide of potash, also by the mouth in ascending doses, diphtheria antitoxin and manganese all more or less markedly influence the production of the white cells. In all of these many determinations, no agents were found which so powerfully stimulated and maintained the count as the mercurial and arsenical preparations.

Hence the conclusion is inevitable that the empirical observations of the past hundred years or more in the direct and potent benefit that follows the administration of the "specifics," in most cases of the luetic and malarial infections, have been in strict conformity with the teachings of Metchnikoff. For example, there is no pathogenic microorganism whose activities and distribution in the human host are so diverse and widespread as those of the treponema. The manifestations of this infection are manifold in all tissues and parts of the body; or perhaps the untoward effects of its presence are shown by varying degrees of illness with no evident lesion and the cause is found only by a positive Wassermann test. In most of the manifestations of this infection one expects and usually sees immediate good results after the administration of mercury or arsenic. White-cell counts before and after the injection of the drug will show a marked increase in the number of these cells; so along with the improvement in the lesion or condition there is an accompanying increase in the numbers of the phagocytes.

For many years it was held that the germicidal effect of mercury and arsenic was active against the spirilla only. This theory was confuted by the widespread use of mercurochrome in the treatment of many infections, usually with consistent and very direct benefit, which followed the work of Dr. Hugh H. Young.

The scope of these clinical results was first impressed upon the writer in perusing the annual medical report of Dr. W. E. Deeks, of the United Fruit Company, for 1924. It was stated in this report that mercurochrome had been administered be-

cause others had used this agent with good results in the treatment of infections other than syphilis, but purely in an empirical way.

The writer, in association with a number of English and Dutch confreres, had been, before this time, treating about the same reported infections by the administration of salicylate of mercury and neoarsphenamine, because these agents stimulated the production of the white blood cells, with results all of a kind with those reported by Dr. Deeks. It was found in Rotterdam, by laboratory tests, that mercurochrome also stimulated the production of the white cells. This fact was reported by the writer to Dr. Deeks, who confirmed the influence of mercurochrome and arsenic on these cells in his annual report of 1925. A recent personal letter from Dr. Hugh H. Young gives further confirmation of the stimulating effect of this agent on these easily mobilized cells.

Following a talk on the white cells, by the writer, before the Southampton Medical Society, England, in 1923, this principle was at once applied in the treatment of infections of the eye, by Dr. Arthur Zorab, Chief Surgeon of the Southampton Eye Hospital. The consistently good results were reported by him in *American Medicine*, New York, in the March issue of 1926.

Dr. Alvis, of St. Louis, in the January number of *The American Journal of Ophthalmology*, reported the successful treatment of several apparently hopeless cases of trachoma by intramuscular injections of salicylate of mercury, after the plan of "Mr. Ferguson of London," the suggestion for the use of this idea having been made by Dr. Carter of the Rockefeller Foundation, Pekin, in a talk before the Ophthalmic Section of the A.M.A. meeting in 1924, after having been convinced by the writer, during talks in London, of the strength of the theory of the stimulation of the white cells.

Sir Almroth Wright, of London, maintained that the principal factor in the healing of wounds was the white cells. An illustration of the truth of this belief may be easily seen in the behavior of a second degree burn, under the influence of the artificially stimulated white cells. When the casualty is first seen, a white-cell count will show an increase, greater or less, according to the strength of the individual and the

extent of the burn, showing this to be Nature's own effort at repair. Then the administration of mercury or arsenic will be followed by a greater increase in the white cells which will be accompanied by a rapid clinical improvement in the wound. With a vaseline dressing, changed daily, and the stimulation of the white cells twice a week, such changes will be seen that it will become a pleasure to dress the case and it will not be turned over to a junior.



Fig. 1. Psoriasis. At beginning of treatment, Oct. 25, 1926.

Clinical Results

The accompanying cuts show the changes in a case of psoriasis under the healing and resistant action of the white cells. This patient had had all manner of accepted treatment for this condition. His back and legs were involved about as extensively as his face when he was first seen, on the 25th of October, 1926. The Wassermann test was negative. Believing that such lesions could come only from some invading organism and that, if this were true, the white cells could overcome the guest and that rapid improvement would be seen, such as could best be shown by a photographic record, the first picture was at once made. Further changes are shown in the following plates. This case had a



Fig. 2. Condition Nov. 15, 1926.

stimulation of the white cells, every five or six days, with 0.6 Gm. neoarsphenamine, 10 to 15 cc. metaphen, 1:1000 or 1-percent mercurochrome, 10 cc.—a total of fourteen injections—after which his count was kept up to about 10,000 by increasing doses of iodide of potash. This patient is now apparently wholly well.

In 1924 and 1925, Dr. C. Rundle, of the Isolation Hospital, Fazakerly, Liverpool, England, on the suggestion of the writer, used this principle in the treatment of some fifty cases of encephalitis lethargica by the administration of an average of four injections of salicylate of mercury. Counts were done in about half of the cases; two failed to show any change in the white cells; in the others there was an increase up to total counts of from 10,000 to 20,000. Of these cases one died two days after admission; the others recovered with a shorter convalescence and fewer sequelae than is usual in this infection.

The history of a case of colitis of eight years' duration shows the effect of the helpful action of the white cells, with the infecting organism unknown. This patient had had all manner of hospital care and observation in Birmingham and Rochester



Fig. 3. Condition Dec. 10, 1926.

during this period. All observers were agreed that no harmful organisms could be isolated. He said he had had irrigations



Fig. 4. Condition Jan. 20, 1927.

and injections of various agents, and that, at last, it was agreed that it was a nervous disturbance.

He was first seen by the writer in a paroxysm of abdominal pain, accompanied by the usual frequent evacuations. Discarding at once the opinion that any nervous disturbance could cause such an exacerbation and believing that some harmful organism was the cause, the frequent stools were checked by 60 grains of subgallate bismuth, three times a day. Two



Fig. 5. Condition May 20, 1927.

days thereafter he was given 10 cc. of metaphen, 1:1000, intravenously, followed by two other injections of the same agent at five-day intervals. Since the first injection he has had from two to three stools a day, this activity being kept up by agarol. He has put on weight and has had no further evidences of the intestinal infection. After a series of five injections he was entirely well and the benefits have now lasted over a period of two months.

Gonorrheal Infections

Further observation of the behavior of gonorrhea under the voracious activity of the white cells has convinced Dr. B. C. Gillen and the writer that in most cases, when the infection has extended to the

prostate and vesicles, the numbers of the diplococci are too great to be overcome by the white cells without mechanical expression of the exudate. Accordingly massage is at once begun on evidence of infection of these organs, and in all long-continued, old cases, this procedure being accompanied by a stimulation of the white cells, twice a week, with mercurochrome, neoarsphenamine, metaphen, tartar emetic, bismuth and, occasionally, skimmed milk.

It has been found that when there is a check in the improvement of this infection, one of three reasons is responsible: The first is whisky; for, while whisky stimulates the production of the white cells, it also stimulates, depresses and irritates the body as a whole and the end result is not good. The second cause of a check is "petting." This practice, when too much indulged in, makes for an increase in the gonorrheal exudate. The third cause is hard work, as seen in truck drivers, coal miners, and telegraph linemen.

Wholly unexpected confirmation of the value of the application of this principle in the treatment of gonorrhea in men and women has just been seen in the report of an article by Dr. R. Lenzmann, in the *Deutsche med. Wchnschr.* Sept. 17, 1926. It was found that in patients with syphilitic and gonorrheal infections there was prompt relief from the latter infection after the injection of 10 cc. of blood from a malarial donor and the following administration of quinine. So marked was this effect that Dr. Lenzmann reports that he treated 68 women and five men with chronic gonorrhea by the intravenous injection of 10 cc. of malarial blood. Then five grains of quinine were given every three hours. If this procedure was unsatisfactory the quinine was given intravenously. The males all cleared up promptly. "Of the females, 53 were negative at the conclusion of the treatment, and 11 more were clear three weeks later."

It is a demonstrable fact that the injection of 10 cc. of blood will cause a prompt increase in the numbers of the white cells; quinine by mouth also is followed by a slight increase. This is much more marked after the intravenous or intramuscular administration of this drug.

Various Other Infections

All of the patients coming to a venereal clinic are not suffering from the luetic or Niesserian infections, contrary to a belief readily established in the mind of an ad-

mitting clerk in an active dispensary that most lesions of the skin will surely show a positive Wassermann test. Through this error, eczema, chronic and acute; a few cases of pruritus; pellagra; and one case of small-pox have been seen by Gillen and me in the last few months. All of these cases were treated, in an application of the teachings of Metchnikoff, by the intravenous injection of arsphenamine, metaphen or mercurochrome, with satisfactory results to the patients and to us.

The negro with small-pox had had the infection for several days and looked ill and very weak, his face and body having many of the bead-like pustules. With much confidence in the phenomena that would follow, he was given 0.5 Gm. of arsphenamine. In four days he came back to the clinic looking much better—pustules gone from his face; a few still present on his body. This patient's request that he be given "another shot of that yellow medicine, 'cause it's shoely good for what ails you" was pleasant for Gillen and me to hear.

A patient with chronic gonorrhea developed an intense pain about the rectum after the administration of 15 cc. of metaphen. An examination showed an anal fistula with a partial blocking of the sinus. A second injection of 15 cc. of metaphen was given and a few days thereafter the patient said he was relieved of his discomfort after the "core" of the abscess was expressed. He was then told that he could never get rid of the fistula without an operation. Dr. W. L. Cowles, a surgeon, was called. Dr. Cowles agreed and it was decided to wait for further improvement of the gonorrheal infection before doing the operation.

In order to avoid the establishment of a tolerance, mercurochrome and arsphenamine were given, along with occasional injections of metaphen. To the utter surprise of the writer, the exudate from the fistula continued to grow less, and it has now been completely healed for three months. Dr. Cowles says it will break down within six months and the writer fears that it will, but at any rate there have been three months of comfort, with much satisfaction to him and to his medical adviser.

Chorea

For a hundred years, arsenic by the mouth has been the most widely used drug in the treatment of chorea. In spite of this treatment there is usually an illness of

several months' duration, accompanied by the characteristic choreic movements. With this empirical observation of our forefathers in mind, when a case of this infection was seen in the Hillman Hospital, in consultation with Dr. B. L. Wyman, in a girl of nineteen who was in a state of particularly violent, involuntary, convulsive contraction of the muscles, it was at once suggested that the white cells be more markedly increased. Dr. Wyman agreed. A count was done and showed 9,800 white cells per cmm. Contractions of the muscles were such that it was deemed inadvisable to attempt to give any intravenous injection, so 1 grain of salicylate of mercury was given, intramuscularly. The white count increased to 11,600 in twenty-four hours. Within four days she had quieted sufficiently to receive 0.45 Gm. neoarsphenamine, intravenously. Three other injections

were given and she was discharged from the hospital, apparently well, in something over three weeks. At a recent meeting of the Jefferson County Medical Society, Dr. Wyman reported five other cases treated in application of this idea, with the same good results.

Metchnikoff says, in the concluding chapter of his "Immunity," "The cellular theory of immunity is, as yet, of too recent date for us to claim the right to expect it to have amongst its assets methods for purely practical application." The writer, in the light of the experiences in the treatment of infections and their sequelae through this control of the white cells, furnished mainly by mercurochrome, metaphen, and arsphenamine, is forced to think that this idea is the sought-for application of the teachings of the great Russian observer.

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The Radical Treatment of Voluminous Herniae

By MAX THOREK, M.D., Chicago, Illinois

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OCCASIONALLY the surgeon meets a very voluminous hernia in which some of the important viscera are contained in the sac. In these cases radical treatment offers a serious problem, not alone on the grounds of surgical technic but from the point of view of the patient's safety. I do not wish to refer to those cases in which there is an abnormally large hernial orifice, or to those in which the sac, though small, may be surrounded by vast masses of fatty tissue which render its isolation difficult. I refer rather to those cases in which a large part of the intestine, if not all, or the stomach, the uterus or other organs have descended into the inguinal hernial sac, which thereby has become partly or wholly irreducible because of the seeming inability of the abdomen to contain the herniated organs.

Jaboulay and Patel¹, in their treatise on hernia, refer to a number of cases in the literature in which inguinal or inguino-femoral herniae contained either part or all of the intestines, or in which the stomach, kidneys, uterus and adnexa, etc., were found in the sac. Dreesen² recently re-

ported a case in which the stomach was in the sac of an inguinal hernia, and states that he could find only twelve similar cases described in the literature. Bianchetti³ refers to twenty-five cases in the literature in which the uterus and adnexa were in the sac of an inguinal hernia.

It is manifest that in cases like the foregoing the hernia is either wholly irreducible, or reducible to a very small degree. They are sometimes due to a congenital defect, such as the persistence of a Nuck's canal or some other anomaly. The carriers of such voluminous herniae have become accustomed to them through their long existence, and there is no great tendency to the acute symptoms arising from strangulation. Nevertheless, reflex phenomena—nausea, vomiting, etc.—may cause great and continued distress to the patients and they therefore seek surgical relief.

Careful examination of a hernia of this type will reveal anatomical changes that suggest the utter impossibility of returning the hernial contents into the abdomen. Extreme force should have to be used, probably causing great traumatism to the intes-

tines and other viscera, or there may be such a pronounced retraction of the diaphragm from the re-entry of the displaced organs that the functions of the lungs and heart may be interfered with, causing the death of the patient by asphyxia. The question therefore arises whether such voluminous herniae can be dealt with surgically and in what manner.

Operations Reported

Becker¹, in 1923, reported the case of a man aged 50 who carried an inguinal hernia which descended to the knee, which was partially irreducible and which could not be sustained by a truss. Becker did a hernio-laparotomy, resecting two meters of the small intestine (ileum) with its fat-surcharged mesentery, removed the testicle and cord, united the ends of the intestine by a side-to-side anastomosis, and reconstituted the hernial wall in the Bassini manner. This patient made an uneventful recovery. Becker did this large resection because he was convinced that the abdomen was no longer able to contain all of the herniated viscera, and feared that if he attempted a forced reduction the pressure of the organs on the diaphragm would cause asphyxia.

Monprofit was the first to execute this method of dealing with irreducible large herniae in 1899; Madelung repeated it in 1904; and several other surgeons, such as Julliard, Panchet and Denk, have also operated successfully in similar cases.

Pototschnig² reported the case of an obese and emphysematous man, aged 53, who had a right inguinal hernia as large as the head of an adult. This patient was operated upon under spinal anesthesia and a number of loops of small intestine were found in the sac, together with the cecum and part of the ascending colon and a mesentery much infiltrated with fat. Pototschnig resected all of the herniated small intestine (about two meters, 20 centimeters), with a termino-terminal anastomosis. The hernial wall was reconstituted according to the Bassini technic and the patient made a good recovery.

In Dreesen's case³ the patient, a man aged 62, had a left inguinal hernia for nine years, which was about the size of a child's head. There was no pain and the patient did not wear a truss. Eventually he suffered from gastric disturbance, and after drinking much fluid the hernia increased in volume and gurgling could be heard.

Roentgenologic examination showed the stomach ptosed, elongated and bilocular, with a lower pouch corresponding to the pyloric antrum situated in the hernial sac and united with the rest of the organ by a strictured portion which traversed the inguinal canal. A radical operation was performed, which was followed by disappearance of the gastric disturbances and no recurrence. In this case, prior to operation, only very slight reduction could be affected, and that with much difficulty.

In one of Bianchetti's cases, to which I have alluded⁴, the patient was a woman aged 21. The uterus and adnexa which were in the sac of the inguinal hernia were returned to their normal position and the sac was obliterated.

Lenormant⁵ considers resection of a large part of the intestine and mesentery, in hernial cases, a mutilating operation which perhaps can be avoided, although he thinks it is practicable. He states that in one personal case of very voluminous hernia, in which the viscera seemed to have lost their place in the abdomen, he was able to replace them without great difficulty and the patient did not show any serious postoperative results.

Incidentally, it may be remarked that the small intestine varies in length, in man, from about 4.5 to more than 9 meters, and that from 2.5 to 3 meters can be removed without serious physiologic phenomena which threaten the life of the patient. The only considerations, therefore, which arise when a hernia demands resection of a large part of the intestine are the amount to be resected and the general state of the patient.

Nash⁶ mentions an enormous inguinal hernia in a man aged 84, who had suffered for fifty years with a protrusion which had never been reduced. The scrotal coverings extended down over the inner third of the right thigh and the inner two-thirds of the left thigh, the circumference of the hernial mass being twenty-five inches at its widest part. It extended down to the left patella, and the sac contained omentum and a large mass of bowel. The kidney, spleen and liver were prolapsed. Nash did not operate in this case because (1) the ligaments and mesenteries of the abdominal contents would have had to be drawn away from their attachments to the abdominal wall; (2) the ptosed and herniated viscera could not have been replaced within the greatly contracted abdomen; (3) because of the

long continuance of the hernia; and (4) because of the advanced age of the patient.

While in this particular case the reasons for nonsurgical interference were excellent and justifiable, in the cases of voluminous hernia usually observed they would not all hold and resection of part of the sac contents appears to be indicated and practicable. Kocher's dictum regarding voluminous hernia, that because a patient has allowed it to become so large it should be left alone, scarcely conforms to the view of more modern surgery.



Fig. 1.—Large inguinal hernia complicating pregnancy.

Every case of large hernia, whether it be umbilical, inguinal or femoral, must be judged by itself, and it is in these cases that surgical judgment is of paramount importance. Men who have not sufficient experience in this type of surgery will do well to have someone who has had sufficient experience and possesses sound surgical judgment assist them during the operative procedures, for upon that depends, to a great extent, the result of the operative intervention.

Personal Cases

Let us examine the illustration in Figure 1. This individual was pregnant and was carrying this enormous hernia. I saw her twenty years ago and it would have been folly to advise an operation before she gave birth to her child. I carried her through a full term delivery and advised that she be operated upon at a time when she had

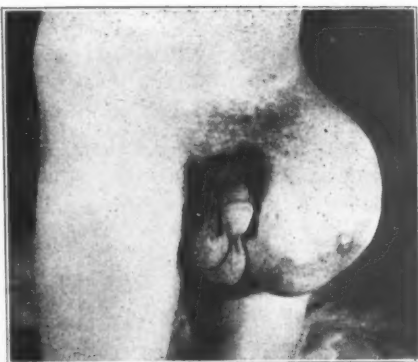


Fig. 2.—Direct inguinal hernia of enormous size.

sufficiently recovered to withstand such a procedure. About a year after her delivery I operated upon her and a large amount of abdominal contents was found in the hernial sac. The usual reposition of the hernial contents into the abdomen, the resection of the hernial sac and the repair of the inguinal canal led to complete recovery.

Figure 2 represents a man about 45 years of age who was recently operated upon by me at the American Hospital. It will be observed that the tremendous hernia did not descend into the scrotum but displaced the structures composing the inguinal canal and formed an enormous direct inguinal path, with the resulting immigra-

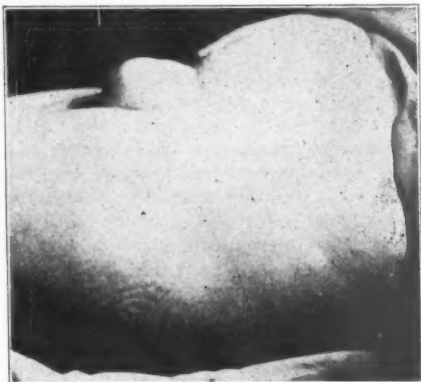


Fig. 3.—Recurrent inguinal hernia.

tion of the abdominal contents into this new abode. The patient had carried this hernia for over fifteen years. He consulted some surgeons who refused to operate on him for fear there might be too much eventration, and that the thinning of the abdominal

wall, coupled with the long duration of the hernia, might preclude the possibility of a successful reposition. This argument was apparently well founded. However, the patient's occupation as a bill poster and a beginning ulceration of the skin made it impossible for him to pursue his work and rendered him bedridden a good deal of the time, so that the matter became an operation of necessity.

At operation it was found that small and large bowel, as well as the great portion of the omentum, formed the hernial contents. I was very fortunate in being able to reposit them without much difficulty and a modified Bassini operation closed the inguinal canal. The patient left the hospital in excellent condition, the wound having healed by primary intention, and he will return to his work after a reasonable period of rest to allow thorough cicatrization of the tissues.

I always counsel sufficient rest for thorough cicatrization following all hernial operations. I do not agree with some surgeons that these patients should be permitted to get up promptly following herniorrhaphies. This may be spectacular to the patient and brilliant surgery to the interns, but is hardly just to the patient. We can do thorough work, but over the healing processes and the peculiarities of the patient we have no control. Let me cite an example of this sort from my own experience.

Figure 3 represents a woman who had been operated upon seven times (!) for an inguinal hernia. She had been in the hands of some of the best surgeons in Chicago and elsewhere; yet the hernia recurred. Close scrutiny of the history disclosed the fact that she had never remained at rest for more than two or three weeks following operations, and I believe that, while the technic was undoubtedly sound in most of the operations she has undergone, she had not given her tissues the necessary rest for regeneration. I operated on her three weeks ago and found the tissues very much denuded. The operation was performed under spinal block anesthesia, and instructions were given the patient to rest for at least two months. At present I am waiting to see whether my operation will be more successful than those of my predecessors.

There is not sufficient space to cite and discuss the various types of cases seen in



Fig. 4.—Tuberculosis of the testis simulating hernia.

my experience as a surgeon during almost a quarter of a century, but I wish to emphasize a few salient facts which have impressed me forcibly.

1.—In operating upon a large hernia we must not be enslaved to any one particular technic. The surgeon doing this type of work must be versatile and command the Bassini procedure and its modifications, the Andrews operation and Ferguson's method so as to have an operative procedure that will be suitable for the respective cases.



Fig. 5.—Inguinal tumor (lipoma) simulating hernia.

2.—We must not be in haste to resect bowel. No matter how skillful one is, it adds to the mortality of the operative procedure. Resection of bowel should be limited to hopelessly diseased structures, or to cases in which, for other reasons, one is



Fig. 6.—Same patient in recumbent position.

forced to eradicate a mass and cannot resort successfully to reposition.

3.—We must be sure of the diagnosis. Not every mass in the scrotal sac or in the inguinal canal or the femoral region is a hernia. Space again prevents entering into a discussion of the differential diagnosis.

Figure 4 speaks more eloquently than any description could. It is the photograph of a patient who was referred to me for operation with the diagnosis of inguinal scrotal hernia. As a matter of fact the case was one of tuberculosis of the testicle and epididymis, accompanied by marked inguinal adenopathy.

Figures 5, 6 and 7 also tell a vivid story of how easily one can be misled in the diagnosis of hernia. Inspection of Fig. 5 shows an apparent mass in the right in-

guinal canal which was diagnosed by a number of physicians as a definite inguinal hernia.

In Figure 6, we see the same patient lying down and the extent of the protrusion is very apparent. However, in this case, we are not dealing with a hernia at all. It proved to be a large lipoma (Fig. 7) which filled the inguinal canal and extended along the canal of Nuck.



Fig. 7.—Tumor (lipoma) after removal.

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When, How and Why Vaccines?*

By C. E. LEATHERMAN, M.D., Louisville, Kentucky

ABOUT four years ago, the representative of a laboratory in another city called at my office and said he wanted to talk with me about vaccines. He made a strong talk and I listened, but was impressed by only two points he made. He left saying he would return, which he did within a few days.

After the second talk with him I began to think and study, but was not yet convinced of the correctness of his statements. A week later he made another visit to my office, and by that time I was about ready to consider the use of vaccines; but, not knowing of their manufacture, etc., I went to Detroit and then to Cleveland, and was

taken through the laboratories, where I learned something about the manufacture and distribution of vaccines.

Arthritis

Shortly after returning home, the driver of a laundry wagon came to see me, stating that he had to discontinue work because his joints were so stiff that he could not get on and off the wagon without great discomfort. The diagnosis of arthritis was made, and I gave him $\frac{1}{4}$ cc. of mixed vaccine containing streptococcus, staphylococcus albus and aureus, colon bacillus and pneumococcus. He returned the next day and said he felt somewhat better. I then increased the dose of vaccine, giving him $\frac{1}{2}$ cc. On the following day he was very enthusiastic because improvement had been so marked.

*Read before the Louisville Society of Medicine.

Three days later I gave him 1 cc. of the vaccine and requested him to report in five days for another treatment. Much to my surprise, when the five days had elapsed, he said he had returned to work and could jump on and off the wagon while it was in motion, just as he had done prior to the development of his symptoms. After the seventh treatment—although he had paid for eight—he said that “if he became any better he would have to consult another doctor,” and no further treatment was administered. However, “One swallow does not make a summer.”

Obscure Infections

George C. came to my office complaining of severe upper abdominal pain, and had a spasm on the office couch. His symptoms appeared to be due to gastritis, or possibly to gall-stone colic. He wanted me to operate upon him, but I could discover no indications for surgery, and decided to give him Van Cott's mixed vaccine containing streptococcus, pneumococcus, colon bacillus, staphylococcus aureus and albus. To my great surprise this man also recovered within a few days and returned to work saying he “felt as good as new.” Of course, these two cases led me to make further investigations.

Mrs. B. came to the office one day, walking with the aid of two canes, and said she had been unable to get about during the past winter. She had great swelling of the joints, some edema of the feet, and evidences of general toxemia. She had also suffered from frequent attacks of coryza and bronchitis. My diagnosis was a toxic condition, and to me her case looked practically hopeless. However, I gave her, rather tentatively, a dose of catarrhalis mixed vaccine containing the Friedlander bacillus, micrococcus catarrhalis, pneumococcus, staphylococcus aureus and albus. To my great astonishment she returned the next day saying she felt somewhat better. The dose of the vaccine mentioned was increased for several treatments, and I then changed to Van Cott's mixed vaccine already described, with the addition of streptococcus rheumaticus. I was surprised on her next visit to note that she was able to walk with the aid of only one cane. After two additional treatments she came in without a cane and told me she was making a garden, attending to her chickens and doing her house work. She has since

reported from time to time and is enjoying good health.

Gonorrhea

I do not treat venereal diseases except where patients insist that I do so. A young man came to me, and, as is usually the case, wanted to be cured of his gonorrhea at once. The diagnosis of gonorrheal infection had been made by a responsible laboratory in the city, and the disease was still in the acute stage. I gave him a dose of gonorrheal mixed vaccine containing gonococcus, streptococcus, pneumococcus, colon bacillus, pseudo-diphtheria bacillus and staphylococcus albus, and then began to read and study. Of course, in addition, local antiseptics were used, the parts were washed with castile soap, etc. After two or three treatments I was surprised at the improvement in this case, because no urethral injections were allowed. After ten or twelve doses of the vaccine the patient had no further signs or symptoms of the disease.

Those four cases, narrated briefly, represent what I have termed “the big four indications” for vaccine therapy. I have used vaccines in many other infections with equally satisfactory results; for example, in boils, carbuncles, and in almost every condition which I could determine as being of infectious origin.

A retrospective view of the cases treated with vaccines shows that I have recorded the names and addresses of 272 patients so treated and have yet to see a single case in which I can conscientiously say that the treatment was a failure. In some of the cases the results have been far beyond my expectations.

Sinus Disease

As a rather unusual experience I may mention the case of a man whose trouble I could not locate exactly. He complained of vague symptoms for which, at first, no definite cause could be found. I asked him one day while he was in the office to note the peculiar odor of a small cup which I had, and he remarked, “Why, doctor, I cannot smell anything.” That led me to the diagnosis. He was given catarrhalis mixed vaccine, and all his symptoms promptly disappeared.

Technic and Dosage

It is my usual practice to make the inoculation in the subcutaneous tissue at the insertion of the deltoid muscle, because of

the convenience of this location. First one arm is used and then the other. I have never yet observed a reaction of sufficient severity to disturb the patient.

The dose of vaccine may be changed—in fact, *has* to be changed—to suit the individual case. In very acute cases, especially with fever and other general manifestations, treatment should be commenced with 10 to 50 million organisms, according to the nature of the infection; in less acute cases, 50 to 100 million; in chronic cases, 200

million may be used as the initial dose. Subsequent dosage will depend upon the response provoked by previous inoculations. Of course, a certain amount of reaction will be noticed, but with proper antiseptic precautions this is insufficient to cause any trouble.

I have had about three years to observe the cases quoted, and feel, from the results I have obtained, that it is our duty to ask ourselves, "When, how and why vaccines?"

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Routine Ligation Following Tonsillectomy*

A Review of Eight Hundred Cases

By V. K. HART, M.D., Statesville, N. C.

THE question of ligation at the time of operation, in tonsillectomy, has long been a much mooted question. Ligatures of one type or another are frequently used in treating postoperative hemorrhage, but the routine ligation of bleeding points at the time of operation is not generally done. The writer feels that the statistics here produced justify the procedure.

No space will be given to an elaborate discussion of technic. Suffice it is to say that the great majority of ligations were made over a tonsillar hemostat, a holder being used (there are several different makes on the market). The ligation was made with No. 0 catgut. In very few instances was it found necessary to use a pedicle needle, and then only when a tear in the superficial muscles gave a deeply-placed bleeding point. In such cases a buried suture, placed with a pedicle needle was of distinct value.

Complications

The complications which occurred in the 800 tonsillectomies here considered were as follows.

1—Postoperative hemorrhage.....	14 cases
2—Urticaria	1 "
3—Suppurative adenitis.....	4 "
4—Torticollis	1 "
5—Postoperative tachycardia....	2 "

It was necessary to take only four of the patients with postoperative hemorrhage back to the operating room. In each instance, hemorrhagic areas were successfully controlled by ligation under general

anesthesia. The bleeding points of four other patients were handled by ligating them at the bedside. The rest stopped after placing sponges of cotton, soaked in equal parts of Monsel's solution and 95 percent alcohol, in the bleeding fossa. This cotton is first dried and placed in sterile containers ready for instant use.

The one case of urticaria came on seven days following the use of a hemostatic serum, intramuscularly, to control bleeding from the nasopharynx due to removal of adenoid tissue. It was typical and intense, of three days' duration. Epinephrin was only temporarily effective, and the effect of the oral administration of ephedrine was questionable.

The four cases of suppurative adenitis all followed the use of sutures at the base. Trismus of the jaw occurred in all cases and it was necessary in each instance to open externally in the submaxillary or infratonsillar area. Uneventful recovery always followed.

The relation of the one case of torticollis to the tonsillectomy was questionable. There was a history of exposure after operation. Recovery occurred in about six weeks, after the use of massage, heat, and diathermy.

The two cases of tachycardia were of short duration. It is believed they were in no way related to the use of sutures. They were interpreted, in the absence of hemorrhage, as an idiosyncrasy to novocaine.

It will be noted that not one case of lung abscess occurred in this series. The dissection and snare method of removal was used in all cases.

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Cosmetic Results

Occasionally scar tissue formation was increased if too large a mass of tissue was included in the hemostat. As a rule there was very little additional scarring. Printed instructions were routinely given to each patient asking him to return a month after operation. In this way a large number of throats were observed to determine ultimate results.

Length of Operation

The operation was probably prolonged five to ten minutes, depending on the amount of bleeding. Completely counterbalancing the added time was the increased confidence and comfort of the patient. Moreover, this procedure is certainly time saving for the surgeon in the long run. Rarely will he be called back to see the patient because of hemorrhage. Then too, bedside manipulations, whether they be sponging or tying,

are most uncomfortable after the anesthesia has left the throat. Therefore, by primary ligation, the patient is saved much pain and, in case of severe hemorrhage, a general anesthesia, which is always essential for efficiency in handling children, in all cases of secondary hemorrhage.

Summary

1—Postoperative hemorrhage occurred in only 1.7 percent of cases, the incidence of this complication being materially reduced.

2—The only complication of any consequence was suppurative adenitis. This occurred in only one-half of one percent of cases and cannot, therefore, be considered to contraindicate the procedure, especially when weighed against the advantages.

3—The comfort and confidence of the patient were enhanced when not expectorating blood after operation.

4—The convalescence was materially shortened by diminution of hemorrhage.

Headache from a Neuropsychiatric Viewpoint

By DR. CHARLES F. READ, Chicago, Illinois

HEADACHE is so commonplace a human ill that the sufferer usually endures it or attempts a cure without recourse to a physician. In consequence the doctor is consulted only for such constantly recurrent, long continued or intolerable head pains as purgatives and commercial remedies have failed to relieve.

The term headache may, for the purposes of this article, be limited to pain apparently experienced within the skull, thus avoiding the discussion of such disturbances as trifacial neuralgia, Sluder's "lower-half headaches," sinus involvement aches, "indurative" headache, etc.

Mechanism of Headache

The source of intracranial pain seems, according to more recent investigations, to lie in an irritation of the nerves supplying the *pia mater* rather than those of the dura, as so commonly taught. Stöhr¹ traces innervation of these nerves of the pia from the carotid and vertebral plexuses, together with fibers associated with the third, sixth, ninth, tenth, eleventh and twelfth nerves, as well as the sympathetic and para-sympathetic. Lennander² found no

pain upon stimulation of the dura alone, though it is in great part innervated by the fifth nerve.

Leake, Loevenhart and Muelberger³, in a recent communication, remark upon the surprisingly small amount of experimental work done upon the mechanism of headache, and relate its origin to stimulation of the sensory nerves (or endings—Stöhr found many receptors in the pia) lying along the blood vessels of the pia. They found dilatation in the meningeal vessels of dogs, after injection of glyceryl-trinitrate, such as causes intense headache in human subjects, and relate this finding to a probably similar engorgement of the pial vessels, with consequent irritation of sensory receptors, in human subjects.

These findings are not conclusive and leave much to be explained if the dural innervation of that great sensory nerve, the fifth, is omitted from consideration—especially as to the origin of ocular headache. We know very well from clinical observation that increased intracranial pressure produces headache, but we are quite theoretical when it comes to accounting for other possible stimuli than direct

inflammatory irritation—as for example, reflex or referred pain and the action of toxins. Unfortunately, headache is a subjective affair and hence can be investigated only in part upon animals, by way of reproducing and observing, in so far as possible, conditions which seem to be responsible for it in man.

Classification and History

Headaches may be classified as:

Toxic.

Reflex.

Migraneous.

Mechanical.

Psychogenic.

In this discussion we shall confine ourselves to the last three groupings, leaving to the internist and the eye, ear and nose specialists that considerable percentage of disturbances due to visual and sinus affections, acute infections, and chronic systemic disorders.

When headache is the complaint primarily causing the patient to seek advice it is quite necessary, after securing the ordinary medical history, to inquire into the:

1.—*Location*: Is it unilateral or bilateral, temporal, frontal, occipital, etc? And is there tenderness upon percussion over the site?

2.—*Duration*.

3.—*Frequency*: Is it continuous? Or when do attacks or exacerbations occur as related to sleep, use of the eyes, exercise, menses, etc?

4.—*Character of the pain*: Sometimes the "pain" resolves itself, upon careful inquiry, into an odd sensation, such as heaviness, a distress, a band or clamp, etc.

5.—*Intensity*, and variations of the same from time to time, for one apparent cause or another.

6.—*Progress*: Is the pain growing worse, more frequent or more diffuse?

7.—*Associated symptoms*, such as nausea, vomiting, disturbances of vision, fits or faints, dizziness, etc.

8.—*Heredity*, especially in suspected psychogenic or migraneous subjects.

Physical Examination

After the history is obtained the patient is entitled to an adequate physical examination, the extent of which will depend upon the information elicited in the history, the practitioner's skill and his conscience. Certainly it should not omit, from the viewpoint of this especial discussion:

1.—Inquiry into the state of the vision by means of the ordinary tests at the disposal of every physician, together with an examination of the optic nerve heads, with the electric ophthalmoscope, preferably. If anything suspicious is noted the patient should be referred to a specialist for an opinion.

2.—State of the pupils and their reflexes, ocular movements, strabismus and nystagmus.

3.—Tendon reflexes.

4.—Coordination tests with the upper and lower extremities.

5.—Percussion of the cranium for evidence of tenderness such as quite often occurs in tumor.

6.—Blood pressure—often but not always increased in cerebral arteriosclerosis. Blood examination.

7.—Blood Wassermann test, where pupils are sluggish or unequal or tendon reflexes are involved, or where the history suggests syphilis.

8.—Spinal fluid examination, when the blood Wassermann test is positive, unless history and findings point to the probability of brain tumor in the sub-tentorial region, in which case puncture becomes a risky procedure.

9.—Possibly x-ray of the skull. Radiography of the skull may be decidedly useful in selected cases. Schüller¹ advises it in syphilis, trauma, and organic affections of the brain, meninges and cerebral arteries. Osteoporotic foci in syphilis, metastatic tumors affecting the skull, myelomas, calcified vessels and tumors of the brain, internal hydrocephalus, and pituitary enlargements may thus be diagnosed; and "lateral shift" of the pineal as well as erosion of the posterior clinoid process are coming to be of importance in the regional diagnosis of tumors. Dandy's method of photographing the ventricles after air injection is clever but a highly technical procedure, somewhat dangerous and of doubtful value except in rare cases.

Where the above procedures, in addition to the ordinary physical examination, examination of urine, etc., are negative, one may be fairly confident that he has to do with migraine or pain of psychic origin, and proceed with further investigations upon this basis. Usually the history alone will dispose of the question of migraine, but physical examination, together with an oculist's opinion upon the eyes, may reveal

exciting causes upon which a rational therapy can be based. Mental examination, chiefly in the form of an inquiry into the patient's emotional life, becomes necessary when other causes have been eliminated. Of this more later.

Migraine

Nine times out of ten the patient brings the diagnosis of migraine with him to the office and comes only because the attacks are growing more frequent or present new features which alarm him, such as transient paralyses, paraesthesias, disturbances of speech, or even loss of consciousness. Jelliffe⁸ holds that from ten to fifteen percent of patients show distinct mental disturbance in some one or more of their attacks.

"Sick headache" begins in youth; one may well be suspicious of the diagnosis with onset after thirty years of age. The etiology is doubtful. Bramwell⁹ found 23 afflicted parents in 61 cases. The immediate cause or mechanism seems to be a vascular disturbance—first vaso-constrictor, later vasodilator, in character—but this explanation falters in the absence of demonstrable vasomotor control of intracranial blood vessels. The march of scintillating scotomata across the field of vision speaks for a progressive involvement of the visual cortex. When, however, this march proceeds without apparent interruption across the entire field of vision of one eye (supplied by both occipital lobes!) such an explanation becomes difficult. Miller's⁷ theory of anaphylactic causation merits consideration, though it has not solved the problem.

The confused therapy of migraine indicates ignorance of its pathogenesis. The writer mentioned thyroid treatment the other day to one of our leading neurologists who replied that he might as well try it since this was about the only remedy he had never used! Phenobarbital is always worth a trial, along with whatever hygienic measures seem indicated. All patients should have defects of vision painstakingly adjusted. Fortunately the disorder lessens with advancing years.

Mechanical Causes

Headache of mechanical origin is usually due to increased pressure, though the pain suffered after spinal puncture is evidence that *hypotension* also has its effect. Ayers¹ and Alpers² suggest that this latter type of pain is due to engorgement of the venous

sinuses, secondary to the drag of the brain deprived of its cushion of cerebrospinal fluid. It is well to use a small needle and to give pituitrin if headache develops. Cornil¹⁰ relates three cases of headache with other findings suggestive of adrenal inadequacy, in which epinephrin brought about relief with a 30 to 40 percent rise of pressure in the spinal fluid.

Headache of cerebral concussion is due to brain swelling and is best relieved by spinal puncture. With the patient in the lateral position, 30 to 60 cc. may safely be drained away, or until an aqueous manometer shows 50 to 100 mm. pressure. One hundred cc. of hypertonic salt solution, 15 percent, intravenously, may accomplish the same purpose, but is not much less disagreeable to the patient than is the puncture. Uremic and severe alcoholic headaches may be treated in like manner; the latter may also be benefited by giving sodium chloride tablets (15 grains) so coated as not to dissolve in the stomach. The headache of brain tumor is mechanically effected and will be discussed later.

Meningitis and Syphilis

It is perhaps unnecessary to call attention here to meningitis as a cause of agonizing headache, yet the writer has seen at least two nonsyphilitic cases in which this etiology was overlooked for some time. It is so easy to elicit stiffness of the neck and the Kernig sign—if present; so easy to do a spinal puncture, that there would seem to be no excuse for overlooking the diagnosis. Certainly the possibility should always be kept in mind.

Syphilis causes headache, in the early stages, by meningeal involvement; later in the same manner, as well by way of endarteritis or gumma. Diagnosis rests upon the history, neurological signs—*especially those related to the third nerve*—and blood and spinal fluid findings. The pain is classically but not necessarily nocturnal. Unfortunately, the examination of the spinal fluid does not always tell the story. Thus a man with positive blood but negative fluid, aside from a two plus Wassermann, is recovering at present, under specific therapy, from a rapidly developing, cortical type of hemiplegia with Jacksonian seizures.

Headache may precede an attack of hemiplegia by several days and, in the case of patients past middle age, should always be viewed with suspicion, especially if accom-

panied by nose bleed and high blood pressure—though it may be a premonitory symptom in cerebral thrombosis without increased blood pressure.

Brain Tumor

Brain tumor is a rare lesion but a dramatic one; to overlook the possibility of this etiology in a case of headache not evidently due to uremia, syphilis, eyestrain or migraine denotes carelessness or ignorance. *Headache, projectile vomiting and choked disk* constitute one of the classic syndromes of medical literature; unfortunately all three do not always occur together and there may be no material loss of vision for some time after the papillitis has occurred.

One should be familiar with the ophthalmoscope and use it in all cases of headache. When not sure that the disk is normal, the case should be referred to the specialist for a decision.

Percussion may elicit tenderness where the pain is located. Focal symptoms among the cranial nerves are to be carefully searched for again and again. Even when the tumor can not be located a decompression will relieve the pain and save vision for some time, *if done without undue delay.*

Psychogenic Headaches

But not all headaches are so serious as the foregoing. There is a considerable group of them remaining after all somatic etiology has been carefully eliminated. *The last diagnosis to be made is that of psychogenic pain*, and not infrequently it is correct. One finds it quite commonly in patients who have suffered head injury months, or even a year or more, previous to examination, when suit for damages is contemplated. The employer's liability law has made headache and dizziness familiar symptoms to every one who has to do with injured employees. When the case is settled these disturbances disappear. They are only the recollection of the early pain and dizziness more or less vividly preserved by the wish for compensation.

Often in neurotic subjects the complaint is of queer, uncomfortable sensations; the more elaborate and bizarre the description the more apt is the trouble to be neurotic. In these cases one must always search for

disturbances of the patient's emotional life; problems that he or she can not solve; conflicts that can not be or are not fought out to a conclusion.

Some months ago an oculist referred to the writer a woman of thirty-five, on account of a "headache" she said she had **suffered continuously for three years.** She was quite sure that too much piano practice had worn out some of her brain cells. She had no marked visual defect; there was no choked disk; she looked well and physical and neurological examinations were entirely negative. Strangely enough she seemed quite merry when discussing her trouble.

After a few visits it developed that she had a strong antagonism against her mother who had forced her into the career of a professional pianist, which career her headache and a fear of forgetting her numbers in recital had brought to an untimely end a year and a half prior to this time. Further development of the situation brought to the patient a realization of the fact that her "headache" was merely a protest against this domination and that she could deal with her troubles in a much better way, whereupon the disturbance disappeared.

Emphasis should be laid upon the fact that even such "imaginary" headaches as the above, without any physical basis whatever, can not be cured by telling the patients there is nothing wrong with them. This is not true and they are keenly aware that it is not. After all other possible causes have been eliminated the indicated remedy is to be applied. *First of all diagnosis; then treatment.*

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The Mineral Balance of the Human Body*

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THE mineral constituents of the human body are those elements which are not organic substances; that is, those exclusive of carbon, hydrogen, oxygen and nitrogen. Listed alphabetically and not in accordance to their importance, they are: aluminum, calcium, chlorine, fluorine, magnesium, manganese, iodine, iron, phosphorus, potassium, silicon, sodium, sulphur. According to recent work sulphur is more properly represented as a non-mineral, but since it is metabolized into sulphates and excreted as such, it is also listed as an organic constituent. Further researches may develop that one or more elements should be added to this list, but the ones listed are the acknowledged constituents, according to investigators in many different parts of the world, and any others that may in the course of time be added as necessary constituents of the body, must occur only in minutest traces. Just at the present time, copper, nickel, cobalt and zinc are receiving a great deal of attention, but no decision has been reached as yet whether, in small quantities, they are essential to the human body or not.

History of Mineral Nutrition

In the early days of chemistry, Leibig directed attention to the fact that the mineral elements, which are constituents of the blood and tissues, are most important factors in the prevention and cure of diseases. Forster¹ and Lunnin² showed, in 1873 and 1881 respectively, that animals supplied with mineral-free food perished even sooner than when deprived of all food. The full meaning and importance of this fact, however, seems to have been lost for a time, due to the concentration by scientists in general upon the rapidly developing and highly organic chemistry of the day.

The present situation is well summed up by Dr. John Boyd Orr, director of the Rowett Research Institute, of Aberdeen, Scotland, who in a recent publication³ remarks:

"Unfortunately, the highly refined foodstuffs of modern civilization are so ill balanced with regard to several essential constituents that a diet composed chiefly of these foodstuffs is liable to be deficient in several respects, even though it yields sufficient energy and provides the necessary

protein. During the past two or three years there has been a tendency to regard the evil effects of a too exclusive use of certain of these foodstuffs as due chiefly or entirely to a deficiency of "vitamines." Recent work, however, has shown that many of the evil effects may be attributed to a lack of correspondence between the mineral content of the diet and the mineral requirements of the body. It is now being recognized that the amounts and proportions of the inorganic elements in the diet are of fundamental importance to the maintenance of health. Mineral elements are present as essential constituents of all the soft tissues of the body and cell life is impossible without them. They control, directly or indirectly, all of the metabolic processes, and the ultimate problems of physiology are concerned with their chemical and physical reactions.

"Jacques Loeb and others have shown that these elements must be present in very definite proportions to form a "physiologically balanced" solution, and when the deficiencies or excesses in the diet are greater than the regulating mechanisms of the body can deal with, the physiologic balance is upset and the resulting disordered functions of the cells make themselves manifest as disease."

Recent Research

Some of the recent important conclusions and generalizations respecting mineral metabolism may be summarized as follows:

1.—*The mineral balance is equal in importance to the protein balance and probably surpasses in importance that of the fat and carbohydrate balances.* Research work has shown that reproduction and growth are impossible without calcium in the diet. It was shown by Daniels and Dutton and others that aluminum, fluorine, silicon and manganese are essential to reproduction in the white rat, even though the diet is otherwise complete.

2.—*To maintain the mineral balance requires an adequate supply of mineral elements in the diet.* The mineral elements are derived from the soil, chiefly by way of vegetable or animal food. A committee of scientists of the American Public Health Association reports that recent evidence of chemical research, of laboratory experiment and of statistical studies of the food supply, all point strongly to the great practical importance of calcium and phosphorus as factors in nutrition and health, and that iron and iodine also appear to be of direct

*Read before the Biological Group, Chicago Section, American Chemical Society, December 17th, 1926.

practical importance from the public health standpoint, in the sense that freely chosen American dietaries do not always furnish a sufficient intake of these elements.

3.—*Assuming an adequate supply of mineral elements in ordinary foods, a number of factors may prevent the attainment of a mineral balance.* Boiling of foods often extracts a considerable proportion of the mineral elements and these extracts, except when used in stews and soups, are thrown away. Also it has been found that the absorption of calcium from heated milk is much less than that from unheated milk.

Another factor that may prevent a mineral balance is inadequate digestion of the food. It is obvious that the more completely the foods are digested, the greater the possible absorption of the liberated mineral elements. This phase of the mineral balance is being studied by a number of investigators at the present time.

It seems fairly well established that without ultraviolet rays, obtained from the sun, directly or through sun-radiated foods of vegetable or animal source, or through artificially produced ultraviolet illumination, the utilization of certain mineral elements is seriously affected as, for example, the calcium and phosphorus absorption in rickets. That other vitamine factors not related directly to the action of ultraviolet rays may be necessary to maintain a mineral balance cannot be denied, but before this can be thoroughly established it will be necessary to rule out all traces of mineral

He produced anesthesia in a dog by means of magnesium sulphate injections and brought the animal to an awakened condition by the injection of calcium chloride.

5.—One of the most important conclusions derived from recent research in mineral metabolism, through the work of Osborne and Mendel, McCollum and his associates, and others, is that, with the exception of sulphur, all of these elements can be utilized by the animal and human organism from the administration of these elements as simple organic or inorganic salts. In other words, administered as simple salts, they require no digestion as a step in the process of assimilation. Among biological chemists this fact is so well recognized that in all their animal studies they almost invariably add a salt mixture so as to eliminate from their studies any factors or questions due to a mineral deficiency.

If, in normal life and health, with an unimpaired appetite, there is danger of demineralization (mineral deficiency), what must be the result when, because of illness, the intake of food is greatly diminished or temporarily ceases altogether? The body attempts to supply its own minerals to maintain a physiologic balance, after food intake has ceased as shown by F. G. Benedict, who studied the mineral excretions of a man who fasted 31 days, taking only distilled water, and who excreted the following mineral constituents, there being no solid excreta during the entire fast (see table):

Mineral Constituent	1st day of Fast	11th day of Fast	21st day of Fast	31st day of Fast
Phosphorus.....	0.73 grams	0.85 grams	0.70 grams	0.58 grams
Sulphur.....	0.46 "	0.62 "	0.51 "	0.49 "
Calcium.....	0.217 "	0.220 "	0.237 "	0.138 "
Magnesium.....	0.046 "	0.072 "	0.053 "	0.052 "
Potassium.....	1.630 "	1.006 "	0.644 "	0.606 "
Sodium.....	2.070 "	0.100 "	0.066 "	0.053 "

elements from the alleged vitamine factor, because these elements have a remarkable influence or action upon each other.

4.—*The mineral elements are often interdependent and antagonistic to each other.* That potassium and sodium have a sparing action to each other is well known. That iron is not assimilable from inorganic sources, except in the presence of manganese, is almost established. That magnesium and calcium are, to some extent, interdependent and also are antagonistic to each other is shown by Meltzer's experiments.

Graham Lusk⁴ makes the following comment upon these findings:

"It seems clearly evident that urinary waste of mineral constituents is largely composed of metabolized (i. e., burnt or digested) muscle or tissue analogous in composition to muscle, and to metabolized bone tissue." This view is supported by the work of Katz⁵, who found that 1000 G. of fresh human muscle contained the following mineral elements in grams:

Phosphorus 2.05; sulphur 2.08; calcium 0.75; magnesium 0.212; potassium 3.20; sodium 0.80; chlorine 0.70; iron 0.15.

6.—So far as present knowledge goes there is only one way in which the various mineral elements can be supplied to the body when the mineral assimilation through ordinary foods is insufficient; that is by the administration of soluble salts of the necessary mineral elements.

The Mineral Diet

The body, under normal conditions at least, can use the mineral elements efficiently even though the supply is very irregular, due to the varying kinds of food consumed. This has long been known to be true of the proteins, fats and carbohydrates, and moderate deficiencies or excesses, for a time, cause no difficulty or harm. Deficiencies are speedily made up and excess of constituents speedily removed or stored, whenever the opportunity affords.

In making up a mineral diet or food that is complete or sufficient for all of the mineral requirements of the human body, the various elements must be present in the proper proportion in order to get the maximum mineralization. Analysis of the various tissues, organs and fluids of the body shows great variations in mineral content and different proportions of the various constituents, so that it is difficult, from that sort of data, to determine a suitable mineral diet. Fortunately, nature has shown us how to proportion the mineral elements, through the mineral constituents of human and cow's milk. Analysis of these milks gives us a standard by which we can go.

A mineral diet made up on the basis of the proportions in which the salts are contained in milk was first used by Osborne and Mendel, and since then has been adopted by many workers, but there seems to be unanimous agreement that the proportion of iron is too low for adult use.

In order to prepare a mineral food suitable for human consumption, it is necessary to consider the following points:

(A) *It must be palatable:* To take the salts in sufficient amounts in a solid (pill, tablet or capsule) form would be objectionable for three reasons: (a) when such a pill or tablet dissolves in the stomach or intestinal fluids, the strong solutions resulting therefrom have a tendency to disturb

the system; (b) the psychologic reaction to taking pills, tablets and capsules is unsatisfactory; (c) the possibility or probability that the salts would not all dissolve and therefore would escape absorption from the intestinal tract and be useless.

To mix the salts with other foods, as in animal feeding, is not very practical or acceptable for human use and, in case of illness, is not always possible or allowable.

(B) It must be completely soluble, to insure quick and complete absorption.

(C) It should be in a form in which human beings are accustomed to take food or drink, and should not resemble a mixture of chemicals.

The author has prepared a mineral food which has been administered to various types and ages of people, both well and ill, for periods ranging from a week or two to as long as nine months; and while detailed reports cannot be given here, it seems to be established that a mineral balance can be maintained in the human body by means of the administration of suitably selected soluble salts of the necessary mineral elements and that such a mineral food can be administered to both young and old over a period of months without the development of a distaste.

The Uses for a Mineral Diet

In all cases where there is a doubt about a sufficient mineral intake or utilization, such a diet is indicated. It prevents mineral starvation, even though the appetite for other food has decreased or disappeared altogether, and patients can be kept in a condition of mineral balance, as easily as in water balance, regardless (almost) of the illness with which they are afflicted.

Such a diet is also useful in special conditions where the demand for mineral elements is greater than normal as in the young and the growing; in pregnancy; and in diseases causing acidosis.

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Radium in the Removal of "Birthmarks"

By FRANK EDWARD SIMPSON, M.D.,
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MOTHERS often ask—what is the cause of "birthmarks"?

Are they due to "maternal impressions", that is, has some ugly or peculiar "sight", seen by the expectant mother been transmitted to the unborn babe and "marked" it, in some mysterious way?



Fig. 1.—Dark red, flat, vascular nevus on side of face, neck, chin, and lower lip. Photograph taken July, 1914.

The belief that maternal impressions may "mark" unborn babies has existed among civilized and savage peoples from the earliest times.

Literature abounds with references to this belief. The Bible, the writings of Shakespeare, Scott, Dickens, Goethe, Oliver Wendell Holmes, Nathaniel Hawthorne and others contain stories based on the idea of "maternal impressions".

There are a number of facts that make us opposed to the view that maternal impressions may "mark" the baby.

Physicians long ago pointed out that there is no nerve connection between the mother and her unborn babe. If there is no

nerve connection, it would seem that there can be no "impressions" transmitted.

The babe is fully formed by the sixth week of pregnancy and the mother is oftentimes hardly aware of her condition. The ugly "sight" that is thought to "mark" the baby is frequently seen after this time.



Fig. 2.—Patient in Fig. 1, after radium treatment. The result in this case was better than indicated by the photograph. Not retouched.

"Marks" or deformities are observed in the lower animals and even in plants.

In spite of popular opinion, therefore, we do not believe there is any scientific basis for the idea that maternal impressions cause birthmarks.

We must admit, however, that the exact cause of "birthmarks" is unknown, just as the cause of cancer and other tumors still remains a secret.

While, from a pathologic standpoint, there are several different kinds of birthmarks, we shall refer to the use of radium in vascular nevi only.

Vascular Nevus

Synonyms.—Angioma, port wine stain, strawberry mark, birthmark, etc.

Vascular nevi are congenital tumors composed of blood vessels supported by a framework of connective tissue. Due to the blood contained in them they are always some shade of red or blue. When on the face, they are peculiarly unsightly and distressing to the individual afflicted.

Before the advent of radium, attempts were made to remove vascular nevi in many

lessness; and the excellence of the cosmetic results.

It must be emphasized, however, that radium cannot be applied in a haphazard way. Study of its effects is necessary before the best results can be obtained.

Technic

In the treatment of nevi that are level with the skin surface we nearly always



Fig. 3.—Dark red, elevated, infiltrated, vascular nevus of face and neck. Photograph taken, July, 1914.

different ways. They were excised, burned with the cautery, frozen with different substances, injected with boiling water or chemicals, destroyed by electrical methods, treated with x-rays, etc. Most of these methods were painful and some were actually dangerous.

Moreover, the usual object of the treatment—the decolorization and leveling of the “mark” so as to make it less conspicuous—was not often gained. Frequently the “mark” was made more unsightly by the treatment because of the production of scars or an uneven color.

Radium in the Treatment of Vascular Nevi

Radium has been so widely heralded as a cure for cancer that its value in removing vascular nevi is sometimes forgotten. Some of the advantages of radium are: the lack of danger connected with its use; its pain-



Fig. 4.—Patient in Fig. 3 after radium treatment. The small area on neck had not been treated when photograph was taken (July, 1915.) The result in this case is not so good as it appears in the photograph as the treated areas are a little too white and the coloring is not quite uniform. Not retouched.

use radium “toiles”. These are pieces of linen or rubber, impregnated with radium sulphate. Being flexible, they can readily be moulded to the irregularities of the skin surface. “Toiles” are of different sizes and strengths. We frequently use “toiles” measuring 3x4 cm. and of 1/20 strength.

By giving a total exposure of from 1 to 3 hours, in seances of from 30 to 60 minutes each, we are usually able to make a marked impression on this type of nevus.

In treating nevi that are raised above the level of the skin we carefully distinguish between the “soft” and “hard” types. “Soft” raised nevi are easily influenced by radium and the dosage should be very weak: “Hard” raised nevi, containing considerable

connective tissue, must sometimes be destroyed by the caustic action of the radium.

In raised nevi of both types, we use either the radium toiles of 1/20 strength or glazed radium plaques, of 1/4 to 1/2 strength. If the caustic action of radium is necessary, we sometimes use these applicators unscreened, giving a total exposure of from 30 to 60 minutes.

In most cases we use the applicators screened with at least 1/10 mm. of lead.



Fig. 5.—Purplish-red, elevated, vascular nevus involving left side of face and upper lip. Photograph taken September, 1913.

A total exposure of 2 or 3 hours, in seances of from 30 to 60 minutes each, may be given.

In the treatment of subcutaneous angiomatous tumors, larger doses are necessary than in superficial nevi.

The radium is placed at a distance of one or more centimeters from the surface of the nevus. Five hundred (500) millicuries of radon, screened with 2 mm. of lead, may be applied at a distance of 3 cm. for a total exposure of 4 hours. The exposure may be divided into two or more periods.

It may be stated as an axiom that, in treating nevi, inflammation of the skin should never be produced by the radium

until selective, i.e., non-inflammatory, doses have failed to bring about the desired effect.

It is often wise to wait 6 months or more after a course of radium treatment before repeating it, as subtle changes in the appearance of a nevus may go on long after treatment has been stopped.

When should radium treatment be started? No age is too young. The best results are frequently obtained in young babies.



Fig. 6.—Patient in Fig. 5 after radium treatment. The small patch at corner of mouth had not been treated when photograph was taken, (June, 1914). Not retouched.

We wish to emphasize the fact that vascular nevi differ greatly in character and appearance. There are some cases in which little can be promised. In most cases, a great change for the better can be brought about. In favorable cases, the birthmark may disappear under the treatment, leaving little or no trace behind.

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Technic and Reliability of Meinicke's Turbidity Reaction in Syphilis

A Test for Use by the Practitioner

By W. T. MEFFORD, M.D., Chicago

IT is conceded by well-regulated laboratories, both in America and Europe, that controls on the Wassermann test are necessary; and in trying the various tests I find the Meinicke turbidity reaction ("M. T. R.") superior to other tests for this purpose. Before going into the comparison of these tests, I deem it proper to give the technic of the Meinicke test.

Reagents

The *reagents* required are the Meinicke extract and a 3-percent chloride of sodium or salt solution.

The Meinicke extract is made from horse heart which is obtained soon after the animal is killed, before decomposition or any pathologic changes take place, because if the heart is not fresh it will not make the proper antigen.

To prepare the antigen, one extracts the heart as one would an ox heart, and then sensitizes the horse heart with 5-percent balsam of tolu and makes it very slightly acid with benzoic acid.

It is rather difficult to obtain a balsam of tolu that will properly sensitize the extract on account of the tolu not being a definite chemical composition, and much depends upon the strength of the antigen given up by the heart and the quality of the tolu, in determining the benzoic acid required. One has to be continually titrating the extract for fear of adding too much of the acid. When the antigen is once prepared and properly titrated it will keep indefinitely at room temperature.

Technic

Obtain the serum as for the Wassermann test. It does not have to be inactivated, yet I have observed that it makes but little difference if it has been inactivated.

Put 0.2 cc. of each patient's serum into properly numbered test tubes.

Measure 1 cc. of Meinicke extract or horse heart antigen into a 15 cc. centrifuge or test tube.

Measure 10 cc. of 3-percent salt solution into another 15 cc. centrifuge or test tube.

Now place these two tubes in the water bath at 40° to 45°C. for not less than ten,

nor more than twelve minutes. At the end of this specified time, mix immediately by pouring the salt solution on the extract and then back and forth two or three times. Add 1 cc. of this mixture, while warm, to each tube containing the serum to be tested. Shake the tubes thoroughly to mix the materials, and keep at room temperature, at 20° to 25°C., for one hour. At the end of an hour an experienced technician can interpret the results.

At this time a strongly positive serum will show opaqueness, or be completely opaque; while the negative will be transparent.

To distinguish more readily, hold the test before the window, but not too close—two or three feet back with the sky as a background—and observe the test by having different degrees of light show on the test as well as different shades of background.

I find it a good scheme to stretch a black cord horizontally across the window and observe the cord by looking through the center of each tube. One cannot see the cord through the positive, but can see it plainly through the negative. Move the ends of the rack up and down and observe the play of the cord. By using this scheme one can see the cord move up and down through the negative, but not through the positive.

In a three plus, one can just observe the cord and its movements, and in a two plus the cord can be seen somewhat more distinctly, but not so plainly as in the negative.

If the test is made at night, one can stretch a black cord in front of a milky-colored glass, with light behind the glass, and stand a few feet back in the dark and observe the test as at the window; or one can hold a screen of small meshes before the light and observe the meshes by looking through the test.

As it is necessary to add the extract and salt solution while warm, if one has more than seven or eight serums to test, it will save time to start a second mixture of salt solution and extract mixture five minutes after putting the first tubes in the bath.

It takes only a few minutes to add these dilutions, and they must be added while warm.

One cc. of extract and 10 cc. of salt solution makes 11 cc. of mixture, and allowing some for loss, this amount of mixture will be enough for ten tubes. Do not make a large amount of the mixture of extract and salt solution, because deterioration might take place.

To make the 3-percent salt solution, one should use the "C.P." chloride of sodium. I use the Parke, Davis and Co.'s salt tablets. They contain 16 $\frac{2}{5}$ grains each, and three of these tablets to 3 $\frac{1}{2}$ ounces of freshly distilled water makes approximately a 3-percent salt solution. Or 3 Grams of "C.P." sodium chloride to 100 cc. of freshly distilled water makes a 3-percent salt solution.

If convenient, one should have a negative and positive serum for controls, but this is not absolutely necessary, especially for those having laboratory experience.

Microscopic Test

One can make the microscopic showing from the turbidity test. This is especially applicable to urgent cases requiring a hasty diagnosis, as well as for infants or cases where a small amount of blood is obtainable. It is really a bedside test and can be made in a short time.

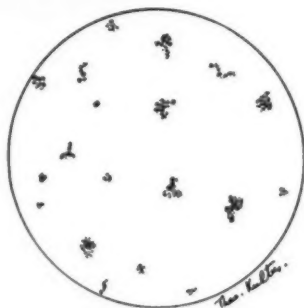


Figure 1
"++" Micro-Reaction

The materials are mixed as for the turbidity test. One can use a smaller quantity, but in the same proportions. I use the deep hanging-drop slide, because the drop on the cover-glass does not come in contact with the slide.

The microscopic showing will occasionally diagnose the case, where both the Wassermann test and the "M.T.R." fail on account of a deteriorated or chylous serum. In such

serums, the syphilitic agglutinants, together with any blood corpuscles or dirt, will settle to the bottom of the drop; whereas bacteria, deteriorated products and chyle will be at the upper part of the drop, or that part next to the cover-glass. By focusing the microscope on different depths of the drop one can easily distinguish these showings.

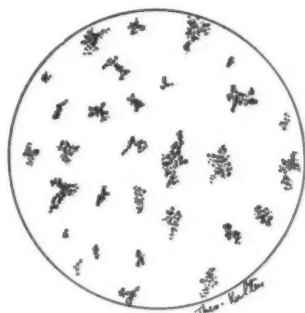


Figure 2
"+++ Micro-Reaction

After placing the drop on the cover-glass, wait 15 or 20 minutes and observe with the microscope, by using the high-power, dry lens. The microscopic showing will also enable one to tell the degree of positiveness—four plus, three plus, two plus, etc.

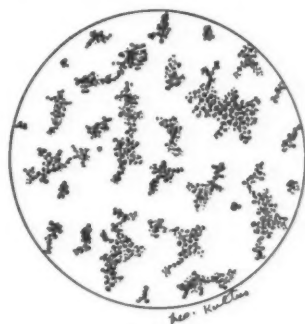


Figure 3
"++++" Micro-Reaction

Martin (*Deutsche med. Wchnschr.*, 1925, No. 40) gives it as his opinion that the microscope will supersede all other tests for syphilis. Dr. R. M. Clark, of London, England, says the microscope is preferable to all other tests in the diagnosis of brain syphilis. Dohnal (*Dermatologische Wchnschr.*, 1923, No. 34) says the microscopic showing gives preference to all other tests. This is one reason why the Meinicke turbidity test is superior to the Wassermann

test, because the microscopic showing will confirm the reaction or diagnosis.

Comments on the Meinecke Test

Dr. H. R. Eichelbaum, of the Almirante Hospital, Panama, says the turbidity test is superior to the Wassermann test because it requires but a small laboratory outfit, saves a great deal of time, and in addition there are no reagents to titrate; whereas in the Wassermann test there are four reagents that must be titrated before making the test: the syphilitic antigen extract; a hemolytic amboceptor; sheep's red blood cells, as an indicator; and guinea pig's blood-serum for the complement. To provide, preserve and titrate the amboceptor and complement also offers many difficulties. Furthermore, the human serum to be tested with these reagents offer us five sources of possibilities for a technical mistake, unless an extensive system of control is regularly employed. Even though one is very familiar with the Wassermann technic, it requires so much time that another reaction which would be quicker and simpler and almost as exact would be preferable for the routine of the ordinary laboratory.

Dr. E. Klatfen, of the University of Vienna (*"Wiener Klin. Wchnschr."* 1926, No. 30), after 17,000 examinations with the Wassermann and Meinicke tests, warmly recommends their combined use during pregnancy and the puerperium. During parturition, however, he recommends the examination of the retroplacental blood by the "M.T.R." Isolated positive "M.T.R." results must not be registered as nonspecific without thorough re-examination and investigation, even though the results of the Wassermann test be negative. This is also the case when the latter continues negative after a provocative treatment with neoarsphenamine or bismuth. Had he used only the Wassermann test in his Institution, a great number of syphilitic cases would have escaped detection.

Professor Azzi and Dr. Aldo Muggio, of the University of Turin, Italy, Laboratory of Scientific Research of the Hospital Maria Victoria, after having referred to the studies which have lately been published by specialists on the "M.T.R.," state that it is at least equal or superior to the Wassermann test; some even think that the "M.T.R." might constitute, in itself, a more than sufficient and reliable element for the sero-diagnosis of syphilis. With regard

to its specificity, the greater number of the investigators consider this to be so great as to be practically absolute; the cases which yielded nonspecific results were so rare as to be practically nil.

A notable percentage of discordant results between the Wassermann and the Meinicke reactions is due to the examination of blood specimens of women during the first months of lactation. Having had occasion to practise the Wassermann test on several wet-nurses, they found, eleven times, that whilst that test was positive, the "M.T.R." was negative. Not infrequently the Wassermann test may yield a weakly positive reaction (+ or ++) in the sera of women who are nursing children. In these cases the clinical history of the nurse and her child quite precluded a luetic infection. In four of these eleven cases they had the opportunity not only of keeping nurse and child under observation, but also of repeating the Wassermann test and of ascertaining that it, too, had become negative. It is needless to say how important this fact is.

Dr. A. M. Saunders, Illinois State Psychopathic Institute, in a personal communication, reports, "We have used the test ("M.T.R.") in conjunction with the Wassermann test in over 12,000 specimens and found an agreement in 95 percent. In the remaining 5 percent we have found the Meinicke more sensitive than the Wassermann, especially in treatment cases. This was ascertained where the Meinicke on the blood was positive, the blood Wassermann absolutely negative. In patients receiving antisyphilitic treatment, a Wassermann alone is not sufficient, but only where the Meinicke is found to be negative can the effectiveness of the treatment be relied upon.

"Our technicians like the Meinicke very much, it is a simple test and very easy to interpret."

Dr. Odon Schulhof, *Therapia* (Hungarian) November, 1926, writes, as a general practitioner, on the question of the practicability of the Meinicke Reaction and remarks that he has been using the "M.T.R." in his practice for the last two years and would be very sorry to forego it. He sets up the test before beginning his consultations so that he is able in the course of them to watch the progress of eventual turbidity. He had numerous cases in which syphilis had in no wise been suspected and

in which only the "M.T.R." detected the luetic origin of the disease. He deems it extremely advisable to subject *every* patient to the test. The execution of the reaction is so simple that it can be used by every practitioner.

Author's Experience

In my own experience of more than 3,000 tests I find the Meinicke turbidity reaction more reliable than the Wassermann test because it is more sensitive. In cases under treatment it will not show negative so soon as will the latter. Again, in a beginning activity of a late syphilis, it will show positive while the Wassermann test will show negative.

There are no reagents to titrate or deteriorate as in the Wassermann test, thereby eliminating many sources of error that may occur; and the micro-reaction can be used to confirm the "M.T.R."

The "M.T.R." is easy to interpret; requires but little laboratory outfit; can be done in a very short time; and one does not have to be a skilled laboratory technician. In fact, a doctor can do this test in his office.

Conclusions

The Meinicke test is more sensitive than the Wassermann, and is much easier to do. Besides it is backed up by the microscopic showing from the test, which really makes two tests in one.

There are no materials to titrate, as in the Wassermann test, consequently this source of error is not encountered in the Meinicke. One has five sources of error in the Wassermann, to one in the Meinicke; besides the Meinicke test can be done in a very short time, and any doctor can do this test in his office.

The Meinicke test will not give any false reactions as in the Wassermann, especially in nursing women or wet-nurses, and it will show positive in treatment cases where the Wassermann shows negative. Treatment cases should not be discontinued until the Meinicke test shows negative.

In late or recurrent syphilis I find the Meinicke test will show positive when the Wassermann is negative.

By the Meinicke reaction one is able to begin the treatment earlier than would be possible if one had to depend on the Wassermann test to show positive.

The Meinicke test is far superior to the Kahn, because of its easy interpretation. Any one can interpret the Meinicke; whereas with the Kahn test one has to be especially trained.

The Microscopic showing can also be made in the short time of one hour, and by the use of a small amount of serum. This is especially important in infants, or where only a small amount of serum is obtainable.

This is really a bedside test.
2159 Madison St.

Hemorrhoids

By MEL. R. WAGGONER, M.D., Cedar Rapids, Ia.

THE treatment of hemorrhoids has not in the past had proper consideration. Too much empiricism has been used. Even today you will hear one prominent proctologist make the statement that phenol is the only remedy for piles, while another condemns phenol and recommends quinine and urea hydrochloride. Then the "orthodox" man declares that they are both quacks and that surgery is the only accepted treatment for this malady.

All are right, because there are cases where one will be indicated and others where another form of treatment is re-

quired. Capillary, venous and sclerotic piles differ from each other in pathology, and the external type differs from the internal, so it stands to reason that, for best results, different lines of treatment should be used.

There are but two classes of piles—internal and external. They differ in that they arise from two distinct vessels, the internal coming from the superior hemorrhoidal vein, which is a part of the portal circulation, and the external from the inferior hemorrhoidal vein which is a part of the peripheral circulation. The internal pile has a mucous membrane covering it while the external has a

cutaneous covering. This is the only correct way to distinguish them, as you will frequently find the internal variety on the outside.

The cause of internal piles is congestion, inflammation or some mechanical disturbance, such as a tumor or uterine pressure upon the vein, or cirrhosis of the liver; as a predisposing cause. The exciting cause, however, is always a basilar proctitis—that is, an inflammation of the rectal mucosa just above the internal sphincter. This inflammation is a distinctly different condition from the ordinary proctitis. It is the predominating cause of practically all anal diseases and, when properly treated, shows the most gratifying results to both the patient and the attending physician.

Hemorrhoids are best classified as follows:

External Hemorrhoids

Venous Type.—The external venous type is dark in hue, soft in character and not usually painful. They are found at the anal margin and have a skin covering. They are always caused by some irritation in the anus above, which, acting as an irritant, causes an obstruction to the return flow of blood, because the inferior hemorrhoidal vein pierces and goes between the two sphincters.

Treat the condition causing the pile and you will see it disappear over night. Do not treat the pile itself or you may complicate the case and cause more suffering to the patient. Of course, if the pile is inflamed or thrombotic, it will require attention.

Thrombotic Type.—This is a venous type which has ruptured as the result of straining. They are usually dark in color, hard and extremely painful to the patient.

Injections or electrical treatments only prolong the patient's misery. The proper thing to do is to treat them surgically as follows:

Make an opening over the pile, turn out the clot, and then place a pad saturated with hemagulen or other styptic serum over the wound and use a perineal pad. The patient will be relieved in a few minutes. However, do not forget that the exciting cause of the pile, in the first place, is some irritation in the anus just above and it should have specific treatment.

Sclerotic Type.—This type is best handled by surgery, although electro-dehydration may be used. The papillomatous type is best

treated by the cuff method. Anesthetize at the base of the pile by injecting a $\frac{1}{4}$ - to 1-percent solution of butyn under the tissues. Do not infiltrate the tissues as this causes pressure necrosis or a painful swelling afterward. It also retards healing.

Grasp the tip of the pile with a rat-tooth forceps and, about a quarter of an inch from its attachment, make a circular incision entirely around the pile, just through the skin. Dissect the cuff down flush with the base. A figure-of-eight catgut ligature will stop any possible hemorrhage. Cut the pile off and bring the cuff up over the stump. See that the edges are approximated and put a small pad over it for gentle pressure; then apply a perineal pad and strap the nates together with adhesive tape.

The adenomatous type should be anesthetized in the same way by injecting butyn underneath in three or four places. Then pinch up the skin covering on the top of the pile and clip it off with scissors. Dissect out the pile, ligate and approximate the edges. If you are careful you will find that it is not necessary to put in skin sutures. Always avoid this whenever you can as it is difficult to prevent stitch infection when they are exposed.

Internal Hemorrhoids

Capillary Type.—Usually patients with these tumors suffer very little distress. They are more likely to consult a physician about bright-red blood which they see on the toilet paper after their bowel movements.

The tumors look more like granulation tissue than anything I can think of. In fact, that is what they probably are, representing exuberance of an anal ulcer. Sometimes they are difficult to find, being frequently hidden in the anal fold.

The classical treatment was to burn them off with nitric acid. However, there are other methods I prefer. Tincture of the chloride of iron, applied every other day, will usually cure them after two or three applications. The best method is to desiccate them with a mild spark, using the indirect, monopolar method from the Tesla coil.

Venous Type Without Prolapse.—This is the most important of all types of hemorrhoids and is found in over 90 percent of cases. They always come from the superior hemorrhoidal vein and may be found in three degrees. (See Figs. 1, 2 and 3).

The older methods of treatment were destructive in character. I will not attempt to go over the various kinds of surgical,



medical and electrical treatments which have been used. We now cure them by reconstructive methods. This is done by setting up a periphlebitis, after which they disappear without sloughing.

There are three methods which may be used: (1) a weak solution of phenol in Wesson oil (6 to 8 percent); (2) quinine and urea hydrochloride (4 to 8 percent); and (3) electro-dehydration.

Of all the remedies, quinine and urea hydrochloride is the quickest and most positive. However, it must be properly applied or trouble may be encountered. When so performed the patient will hardly know when you treat him and will suffer no after pain. In 72 hours' time the hemorrhoids will be gone. As stated before, the technic of application must be correct or you will not get the best results.

Remember, the injection must be made *superficially*, just under the mucous membrane, and not into the vessel; it should be well away from the muscles of the anus because, if you get it into them, it will set up a myositis so that the sphincter muscles will contract and cause your patient some distress; and, last, by all means, do not attempt to *force* the solution into the tissues, but *lay* it in. Pressure from forcing will cause irritation and possibly sloughing. Do not inject when the piles are prolapsed, as the constriction of the sphincters greatly enlarges them and you will not get your solution where it will do the most good.

Technic of Operation

The best proctoscope to use in this work is one of the Brinkerhoff type which also allows the end view permitted by the ordinary anoscope, and I prefer the 8-percent solution of quinine and urea hydrochloride; it is more positive.

Put your patient in the knee-chest position and pass the proctoscope to its full length. Remove the obturator and insert the light carrier, then slowly pull the scope out until you see the internal hemorrhoidal ring bulging over its open end. The pile or piles will be seen as a definite bulge in the ring. Push the scope gently in and turn so that the slide is at this bulge. Then

slowly pull the slide out until you see the end of the pile. You will perhaps be surprised to see how small it is now, particularly if it was prolapsed when you first saw it.

The next procedure is to put an extension on a Luer syringe, using a needle $1\frac{1}{2}$ inches long and not larger than twenty-four gauge; fill the syringe with 6- to 8-percent quinine and urea hydrochloride solution and pass the needle just under the membrane, high up on the side of the pile. It should be passed the full length, so that you can see the point beyond the pile. Then start injecting and, as you do so, slowly pull the needle back. In this way you will *lay* the solution in without bulging the tissues. Repeat the procedure on the other side and, if it is very large, do the same thing at the top. Treat all the piles at one sitting.

Whatever you do, do not go down at the base of the pile where it is attached to the mucous membrane as you are liable to get the solution into the muscles, setting up a severe myositis. If, within forty-eight hours, the piles have not practically disappeared, I usually repeat the treatment as I do not always get the solution into the proper place. No after treatment is required for the first degree type.

For the second degree, we usually have the patient kept quiet for a couple of hours after treatment and instruct him not to have a bowel movement until the following day. Should he have a desire to defecate, a few hot applications, while in the Sims position, will dissipate it in a few minutes.

The third degree, where the pile has extended to the outside, renders it advisable to apply ice or cold packs for fifteen minutes, then leave off fifteen minutes, and repeat until three applications have been made. The patient should refrain from having a bowel movement until the next day. Warn him that he should not sit on the toilet and strain, because the piles may prolapse and the pressure of the sphincters is liable to strangulate them, causing pain and bleeding, which, of course, defeats the treatment. Should they prolapse, show the patient how to replace them immediately. This is done by assuming the knee chest position when, with one finger well lubricated, he can quickly replace them. If he cannot do this, he should call his physician at once because strangulation might occur.

Venous Type With Prolapse.—Many times you will see protruding piles which, to all

appearances, are complicated with prolapse, yet when you get to the internal ring you will find it unbroken. This is not a true prolapse but simply a third degree pile with tumescence of the tissues. They will respond to the same treatment used in the ordinary third degree type just mentioned.

If, however, as you examine the internal hemorrhoidal ring, you find a quarter or half of it broken and the mucous membrane at this point paler, showing the absence of the internal ring, you know that you have a true prolapse which will have to be treated along with the pile. The pile is treated as already described.

Prolapse

There are two very good ways of treating prolapse of the mucous membrane: First, clean the rectum and sigmoid with an instillation of four to six ounces of kino and then, with the patient in a knee-chest position, insert a needle just under the mucous membrane, about one inch above the internal hemorrhoidal ring, on the side of the prolapse, and inject *one drop* of pure carbolic acid. Immediately remove the proctoscope, insert your finger and massage where you injected, so that the solution is well distributed. Keep the bowels from moving for three or four days and you will find, as a rule, that this will cure the prolapse. The trouble with the old technic was that they did not go high enough with their injection.

A treatment I like better is electro-dehydration, which is accomplished by using the d'Arsonval diathermy high-frequency current. Set the current before you start, by connecting a cord to one terminal and approaching the other cord to the other terminal of the machine, so manipulating the spark gap and rheostat that you have a continuous jump spark of $\frac{1}{4}$ inch and,

while this spark is jumping, a milliampere reading of between 3500 and 4000. A piece of block tin, 4x6 inches, is then fastened to one of the terminals and strapped to the small of the patient's back. The other terminal is connected by a cord to a suitable needle holder. The needle is inserted under the mucous membrane for about $\frac{1}{2}$ inch. Then flash the current on, controlled, of course, by the foot switch; wait a few seconds and repeat until a tiny white circle is seen about the needle. *Caution:* Do not hold the foot switch down—simply flash it on—as this high amount of current will cauterize severely if continued an instant too long.

The sclerotic form of internal piles is handled the same as the external, providing they are low enough so that you can get at them; if not, destroy them with electro-dehydration as mentioned above. Run the needle through the pile attachment about $\frac{1}{8}$ inch from the base, then pull the pile away from the mucous membrane and step on the foot switch instantly, repeating the flashes until you have complete coagulation. If the pile is pedunculated you can cut it off external to the coagulation; if of the adenomatous type, leave it alone and it will shrivel up and eventually disappear. If this treatment is done properly, you will have no slough.

In the venous type of pile, with true prolapse, be sure to treat the pile at the same time you treat the prolapse. In venous piles complicated with fissure, you may treat the fissure and the piles at the same time. If, however, there is prolapse, do not treat the prolapse until the patient has recovered from the acute irritation of the fissure. The same holds true with piles complicated with acute cryptitis. It is best, however, to treat but one crypt at a time if they are acutely inflamed.



Surgical Seminar

Conducted by GUSTAVUS M. BLECH, M.D.

[Note: The Seminar is devoted entirely to the practical interests of surgeons. Problems and their discussions are solicited. Contributors must give their names, but whenever desired these will not be published. Questions for this department should not exceed fifty words. Address all communications for the Seminar to Dr. G. M. Blech, 108 North State Street, Chicago.]

Surgical Diagnostics (Continued)

Stenosis of the esophagus is due either to trauma produced by chemicals or to ulcers as a result of diphtheria or syphilis. Organic stenosis of either type is due to scar formation. The esophagoscope shows narrow whitish strips which, when followed in their course, lead to a plainly visible, round stricture. In examining for this type of stenosis one is astonished to find the mucous membrane smooth, except in cases where an esophageal sound has previously been introduced in an unskillful manner, when, of course, slight granulations which bleed easily can be observed. Even then the esophageal wall very often is seen to participate in the respiratory movements.

When stenosis is due to neoplasms—carcinoma by the way is most frequently the cause of this type of stenosis—the picture that presents itself differs from that of cicatricial stenosis and varies according to the character, size and location of the growth. The usual experience is to see a rigid, infiltrated esophageal wall with highly red mucosa, while the esophagus is narrowed at one side. The instrument, as a rule, shows, an irregularly shaped but definitely circumscribed defect in the mucous membrane. The ulcer appears dirty-grayish and bleeds easily on the slightest touch. Nine times out of ten the esophageal wall does not show any movement on respiration.

Easily-bleeding growths are, as a rule, malignant, especially when a few drops of adrenalin, applied by carrier, do not control the bleeding. In such cases a small particle can be removed for microscopic examination by a special appliance and the beginner will do well to desist from further manipulations. It must not be forgotten that, while the majority of esophageal growths are carcinomatous, other tumors

are not rare. I have seen quite a number of polyps. These are recognized comparatively easily by the fact that they have a narrow pedicle.

In the study of stenoses of the cervical part one must never forget that such conditions are the result of compression from growths or pathologic conditions situated extra-esophageally in, perhaps, the majority of instances. Goitre, enlarged lymph glands of the neck, mediastinal tumors and aneurysms of the chest suggest themselves as obvious causes of compression. In such cases the wall of the esophagus is almost always narrowed at one side, the wall is round and prominent where the growth compresses and the mucous membrane is usually smooth except for small erosions. Here, too, we note that the respiratory movement is absent or at least greatly diminished. When pulsation can be seen, the diagnosis of an aneurysm seems established beyond doubt. The differential diagnosis of the various growths producing compression stenosis can not be made by esophagoscopy alone, except in aneurysm. The complete clinical examination must now accomplish what instrumental inspection can not.

Finally I must mention stenosis due to spasm. Spastic stenosis has been seen at or close to the cardia and in the cervical part but never (by me personally) in the thoracic part of the esophagus. The picture that presents itself in the esophagoscope is that of a small red "hemorrhoid" with radiating fissures.

As pointed out in the preceding issue, a spastic stenosis is differentiated from an organic one by—patience. If after waiting a while the instrument cannot pass, or if repeated efforts fail, we know that the stenosis is not due to spasm but to a cicatricial contraction. It is evident from what has been said that there is no method that can replace the esophagoscope in our efforts to arrive at an exact diagnosis.

We come now to study the *dilatations*. Irrespective of whether the dilatation be diffuse or diverticular in character, the esophagoscope will aid in establishing

details which we cannot secure even by roentgenography.

A true dilatation is diffuse in character, in fact so much so that, when the patient is ordered to take a deep breath, the esophageal wall disappears from view and the examiner has the sensation as if the esophagoscope were in a large, dark cavity.

Diverticula are usually found either below the bifurcation of the trachea (due to inflammatory processes of the lung or bronchial glands which eventually shrink and drag the affected part of the esophageal wall away), or at the cervical part of the esophagus, when they are known as pulsation diverticula, in contradistinction to the "traction" diverticula below the bifurcation.

In looking over the larger textbooks and encyclopedic works on surgery one secures detailed descriptions which impress one with the idea that the actual pathology has been studied in the dead room and not through the esophagoscope. It is, indeed, a difficult matter to give an adequate description of the varying appearances of diverticula to the beginner, because often the entire field is obscured. Indeed it has been advised to introduce stomach tubes alongside the esophagoscope and test the diverticulum or diverticula by means of dyes, all of which is not entirely satisfactory and certainly does not help in establishing esophagoscopy on an exact footing.

The novice should never forget, when failing to identify a diverticulum no matter where located, to make use of deep inspiration on the part of the patient, when the sac-like deviations are more or less easily recognized. Finally, remaining food particles are easily detected and thereby one recognizes the line of communication of a diverticulum with the esophageal wall proper, so that one can almost make a diagrammatic drawing of the diverticular forms. If one succeeds in reaching the base of a diverticulum with the esophagoscope the mucous membrane appears smooth and tense.

The clinical history should show preceding inflammation or injury of the esophagus, without which diverticula are inconceivable. While there are all sorts of congenital stenoses and dilatations, diverticula of the congenital type have not been observed by competent authorities. My own experience is too limited to venture a definite opinion.

Inflammation and ulceration of the esophagus is easily recognized by esophagoscopy. In the former the mucous membrane is bright red and often shows hemorrhages. Depending on the causative factor (alcoholism, gastric ulcer, retention of food due to stenosis, etc.) and the chronicity of the inflammation, the mucous membrane may appear changed by edema with grayish-yellow discoloration. Tenacious mucus sticking to the wall and dilated veins speak for congestive catarrh, so-called.

If, on esophagoscopy, one sees a circumscribed inflammatory area with the surrounding wall apparently normal and no history of trauma can be elicited, one must be on guard, for a beginning carcinoma beneath the mucosa may be the responsible cause!

Syphilitic and tuberculous *ulcers* in the esophagus do not differ from similar ulcers elsewhere in the body. The esophagoscope will enable the examiner to excise a particle for microscopic examination which should remove all doubt, if any. Certainly no time need be lost with antisyphilitic treatment for diagnostic purposes.

The literature refers to actinomycosis and peptic ulcers of the esophagus, but these must be exceedingly rare, as in a number of years, during which I have performed esophagoscopy quite often, I have never seen either form of ulcer.

One must not confound true ulcers with the pressure ulcers produced by a foreign body, which in the esophagoscopic picture resemble a necrosis with grayish deposit.

As regards *foreign bodies* it would seem that, with the modern development of roentgenography, practically every foreign body should be seen on the fluoroscopic screen or on the developed plate, but such is not the case. I have an experience of two patients having swallowed artificial dentures and the plate showed nothing definite. Likewise fishbones stuck in the esophageal wall do not very often show. The history of having swallowed a foreign body is not conclusive evidence, for, aside from hysterical persons, normal and truthful persons who actually have swallowed a foreign body may complain of its presence in the esophagus when in reality the body has already passed into the stomach. The sensation of the presence of a foreign body is, of course, due to trauma.

Contrary to the classic teaching of first introducing an esophageal bougie before

resorting to esophagoscopy, in the case of foreign bodies it is advisable to avoid sounding. A soft stomach tube may do no harm but its use is not purposeful. There are all sorts of devices for the removal of coins, dentures and the like. If one can handle these appliances with skill and obtain results, well and good, but in unsuccessful cases the use of the esophagoscope will prove indispensable.

Esophagoscopy, to be successful, must be carried out systematically. The best plan is to introduce the instrument gently down to the cardia. If a foreign body be encountered by this procedure the examination is completed and followed by extraction. But when a foreign body is not encountered the instrument is withdrawn slowly and the entire esophageal wall is gradually and carefully inspected when a lodged foreign body will become visible.

Even a novice will have no difficulty in recognizing many of the usual foreign bodies which are accidentally swallowed. It may be well to remember that coins—especially the silver pieces—have a certain brilliancy; that bone particles appear yellowish rather than white; and that dental plates are often hard to recognize because of poor contrast with the color of the esophageal mucosa.

The novice should never forget that the esophagoscope, when touching a foreign body, may also dislodge it sufficiently so that it drops down to the cardia.

We have pointed out before that sounding of the esophagus as a preliminary to esophagoscopy for a foreign body is not purposeful. It has happened again and again that the preliminary sounding has excited the muscles until the foreign body is held out of view through muscular contraction. While local analgesia or general narcosis may overcome muscular spasm very quickly, the examination is rendered more complicated. Either we fall back on sounding and extraction by probang-like appliances, or else esophagoscopy should be employed direct.

Gastrosocopy

Gastrosocopy is practiced extremely little in the United States. As a matter of fact many specialists who have experimented with this diagnostic method have abandoned it because it did not prove satisfactory. Under the circumstances it would seem a wasted effort to discuss it in this serial. I am convinced, however, that gas-

troscopy is a rational diagnostic procedure and that whatever disappointments have been experienced have been due to faulty and imperfect instruments. A new gastroscope which seems to give satisfaction has been perfected so that it may not be labor lost to discuss the problem somewhat in detail.

(To be continued)

Problem No. 5. Concluding Discussions

Dr. M. O. Robertson, Bedford, Ind. First, with reference to Dr. Lake's criticism: This patient and her family belonged to a faith-healing cult and resented rather arrogantly every suggestion of surgical treatment. This statement will, I am sure, exonerate the physicians who preceded me, especially so because I have just learned that the physician who examined the patient a year ago had urged operation.

I am confident that at the time of my first visit the patient could have withstood the effects of an abdominal section, but as this was declined I am deprived of the satisfaction of verifying what must remain to me now a matter of speculation.

Personally I am inclined to accept a fibroid tumor which underwent sarcomatous degeneration, with final infection, peritonitis and death. I am basing this opinion on the induration and obliteration of the cervix.

When I saw the patient I considered ovarian cyst; fibroid tumor with malignant degeneration; carcinoma of body uterus; appendiceal abscess; ectopic gestation with death and encystment of fetus.

Cyst was ruled out because, though tense when filled, fluctuation can be made out in the majority of cases. This was absent here. Carcinoma of the body of the uterus would have given an offensive discharge. Appendiceal abscess would have given a rather stormy history. While ectopic gestation is in the realm of possibility, the presence of a fetus in the abdomen after so many years would, according to my experience, have led to a solid mass due to its mummification. Accordingly there remains but the diagnosis of uterine fibroid with degeneration of a sarcomatous character, terminal infection (peritonitis) and death.

Col. George B. Lake, Chicago. In reply to that part of Dr. Robertson's discussion which concerns my strong remarks in the discussion in the last issue, I am constrained to maintain that they were none the less deserved because neither of the

doctors was to blame. The case *was* mistreated, though the responsibility rested upon the family.

This entire discussion is not unproductive of good since I may be permitted to suggest a simple course to safeguard the dignity and prestige of our profession. When a surgeon deems an operation absolutely indicated and the patient or family decline such treatment, he can draw up a simple statement of the facts and ask that the patient or some responsible member of the family sign it. I know from experience in the regular Army that such a step obviates later misunderstandings and embarrassment. The editor of the Seminar tells me that he, too, tried on one or two occasions such a scheme and that this request so impressed the patients that they withdrew their objections and submitted to operation, perhaps on the psychologic impression that death would result if the patient was not operated upon.

Editor's Comment. The case has been interesting. From a seminaristic point of view I must admit that Dr. Robertson has given us an excellent description of what he saw and felt. Scientifically we stand before a stone wall. Dr. Robertson has so well analyzed his case that I must restrict myself to two remarks: First, it is very often difficult to differentiate between ovarian cyst and fibroid tumor of the uterus. Even the most experienced gynecologists and general surgeons have hesitated to make exact diagnoses in such cases before operation; Second, a tubo-ovarian abscess, possibly of gonococcal infection, may become encysted and go on for years, grow and produce necrosis of the adjacent structures and finally rupture in any direction. If even a drop of this "long sterile" (?) pus enter the free peritoneal cavity, peritonitis and death are almost certain to result.

Discussion and Solution of Problem No. 6
(See June issue p. 456)

This problem concerns a woman, aged 50, mother of several children, all of whom were breast-fed, who has a nodular growth in one mamma, which has been diagnosed by a physician as carcinoma, requiring radical operation.

The past and familial history of the patient has no bearing on the case, except that she has entered the climacterium.

Physical examination reveals nothing noteworthy, except as regards the mammae.

Close examination shows that the patient has a number of nodular growths, some of which are deeply located, together with cord-like strands of hard tissue running along the direction of the acini. Both breasts show an almost identical condition. These growths are not sensitive to pressure except one most superficially located—the one which had attracted the patient's attention.

The patient is in average health, has lost no weight and suffers only from symptoms due to the climacterium. The requirement calls for the diagnosis and treatment.

Discussion by General George Acheson, St. Martins N. B. Canada

May I preface my remarks by a quotation, the author of which I do not know? "Seventy-five percent of all tumours of the breast are malignant in nature."

To this may be added three statements from the pen of the distinguished surgeon, J. Keough Murphy: (1) "No tumour of the breast can be diagnosed with any adequate degree of certainty by clinical or even naked-eye examination only"; (2) "No tumour of the breast should be allowed to remain in an adult; it should be removed, its microscopic constitution most carefully examined at the time, and on such examination the later surgical procedure should always be based"; (3) "If there is a reasonable suspicion that a breast tumour is malignant in character, a proper removal of the breast, together with all its lymph tracks, should be at once undertaken."

In the case described, we have what may be called chronic, lobular, interstitial mastitis, commonly regarded as a non-inflammatory, benign tumor—a fibrous growth, associated with increase of the glandular alveoli enclosed in the fibrous tissue. Undoubtedly this is a pre-cancerous state, and should be treated as such. It is indeed impossible to diagnose it from the early stage of cancer.

Another possible diagnosis is fibro-adenoma, which is probably only a variety of chronic lobular mastitis, in which the glandular tissue predominates, and where the growth is more freely movable and circumscribed. Even these growths, which are found usually in younger women, are very prone to develop malignancy.

The fact that, in this patient, there are multiple nodules in both breasts, complicates matters somewhat. We used to be

taught that all true tumors of the breast are single. But there is no reason that I know of why that statement should be assumed to be correct.

In the case under discussion, I would remove a small piece of the most evident growth for immediate microscopic examination; and, if the pathologist pronounces it cancerous, complete removal should be proceeded with. No other treatment can be expected to exert any curative influence on the progress of the disease.

Discussion by Dr. E. C. Junger, Sodier, Iowa

Problem No. 6 appeals to me as a case of adenomatosis. Roughly speaking, I can conceive of no carcinoma of the mamma without finding at least some involvement of the axillary glands. Even if we grant the presence of what, for want of a better term, we may call multiple carcinoma, one would hardly expect to find the same identical condition in both breasts. Finally, had there been malignant disease, I am quite sure you would have said something of retraction of the nipple or "dimpled" skin. But as nothing like that was given it may be assumed that they did not exist, which justifies the diagnosis of adenomatosis.

Discussion by Dr. Herman J. Kooiker, Albert Lea, Minn.

The diagnosis in this problem is the thing of importance because it all centers around the question whether the nodule is carcinoma or not. We have a reflection of the history in the findings after examination of the mammae. Doubtless the nodule noticed by the patient had existed unnoticed until it became a distinct "lump" and, as was hinted, somewhat painful. Nothing is said in the problem about the well-known characteristics of malignant disease of the breast, but we do learn that both breasts are about equally "lumpy." With the findings as given, two possibilities present themselves: First, lobular or interstitial mastitis, an affection usually seen in women with small, atrophic breasts, near or past the menopause; and second, scirrhus tumor.

We know that in the former we have an exaggeration of the normal sclerosis taking place at this period of life with a pathology of diffuse overgrowth of connective tissue, associated with epithelial proliferation. We know that the acini sometimes become filled with cheesy material and that what is known as involution cysts of vary-

ing size fill the breast structures in a great area, often sufficiently so to give the impression of a tumor.

As regards scirrhus, we recall that there is usually enlargement of the axillary glands and that the skin is adherent to the tumor, which is stony hard, defined and not disseminated or merging with the surrounding tissue, so that it is easily detected by palpation.

Of course it is appreciated that both conditions may coexist. If I had any doubt in any given case, I would recommend biopsy for microscopic examination, all preparations having been made for radical extirpation the moment the pathologist reports the presence of malignancy.

Discussion by Dr. W. Herington, Green City, Mo.

When we consider the amount of trauma the mammae of mothers who have reared children had to undergo, one must wonder that there are any normal breasts left at all.

Basing my opinion on a good deal of experience, during nearly a quarter-century of practice, I am inclined to accept the case as presented as certainly not cancerous; but I have always heeded the advice that it is better to be safe than sorry.

Although nodular growths in the mammae very frequently are no more than hypertrophied milk glands, it is better to give patients a guarded statement, and to make a definite diagnosis conditional on two weeks' treatment.

Given a case like the one of the problem, although it has no evidence of malignancy, the safest procedure is to remove the entire mamma and if there are no enlarged glands under the pectoral muscles or in the brachial plexus we need have no fear for the future; but in the presence of enlarged glands nothing but radical extirpation remains to be done.

I cannot see that the patients are much handicapped from an operation, even if the growth or growths prove to be benign, while at the same time we have afforded the patient the best surgery can give in the event that we have malignancy. Taking these cases as a class I am a firm advocate of early and radical surgery.

Discussion by Dr. Oliver H. Griffiths, Wheeling, W. Va.

The diagnosis of this case is chronic, interstitial mastitis—a term, by the way,

which is not proper. What we actually have here is multiple dilatation of the gland acini, with increase of the connective tissue between the ducts and acini. The diagnosis rests on the fact that the nodules are in both breasts and that there is absence of bleeding from and fixation or retraction of the nipples and of glandular enlargement in the axillae.

As regards the second requirement, treatment, the patient should be kept under close observation, so that examinations are renewed every four to six weeks. Should the nodules increase in size and should there be bleeding from the nipples, one should excise a suspected piece for examination. It goes without saying that a radical amputation of both breasts will conclude the partial excision when malignancy is reported.

Discussion by Dr. D. H. Nusbaum, Storm Lake, Iowa

The case in the problem impresses me as a more or less natural breast. The patient appears to have a few conspicuous lymphatic glands in both breasts, probably due to injudicious care during lactation but certainly not the least alarming. The larger nodule happens to be more accessible and was therefore noticed by the patient, and I have no doubt but what the sensitiveness of the little nodule was due simply to the patient's constantly examining the "growth." I may add that the condition as described in the problem is found in many women of the patient's age.

Treatment should be as noninterfering as possible and of the preventive type.

Editorial Comment

One of my dearest friends who, though an internist, follows the seminaristic exercises closely, has criticized the colloquial tone of these discussions and my comments. We have tried to build up a department of mutual helpfulness; professional friendships have developed; and we expect to maintain a friendly, round-table discussion.

I will be forgiven, therefore, if I gloat about the response by our readers. It will please all to know that I have sixteen additional letters, all of which vote against carcinoma.

The reason for the diagnosis of chronic mastitis is obvious. I prefer the general term chronic mastitis to any term descriptive of the pathologic change, because our nomenclature is in a hopeless muddle. Cases like the one described are seen in the type

of women presented in our problem quite often, and the characteristic part of it is that we find symmetrically, in both breasts, hard or tough nodules and strands. I am absolutely unable to enthuse myself for amputation of one or both breasts simply because of the presence of mastitis, and I trust that once one is sure of his diagnosis he will be equally unable to recommend operation.

But there is the problem of a doubtful diagnosis. Of course there is no excuse for having diagnosed carcinoma in this case. Most women do not at once accept such a diagnosis but, before submitting to radical operation, will consult a number of specialists—and justly so—until a definite decision is reached through microscopy; but all this is not subject to discussion and we are concerned solely with the diagnosis without resort to microscopic examination of suspected tissue.

I feel that the diagnosis of this case is easy. We know that the nodules in chronic mastitis are irregular in size, varying from that of a bean to a bird's egg; that they are not sharply separable from the surrounding tissue; and that they have a tough consistency, but are easily movable. The only time when one may be in doubt is when one of these nodules becomes larger than the rest and rounder in shape. In such cases we think of the development of one or more cysts in the nodule, and it is only when these cysts appear to grow in size without there being, at the same time, evidence of fluctuation that we must become suspicious of the possibility of malignancy. The treatment, of course, is purely hygienic in character.

Problem No. 8

A man aged 55, teacher by occupation, has been suffering from gastric trouble for many years. Of late he has had several attacks of "cramps in the stomach," and has vomited greenish material. During these attacks he has no bowel movements and he cannot pass flatus. These attacks have come quite often of late, but for the past two days he has been very ill. Icterus and pains radiating to the right shoulder have caused his family physician to diagnose cholelithiasis with cholecystitis, possibly also obstruction of the common bile duct.

You see the patient at the hospital where everything is ready for laparotomy. After
(Concluded on p. 630)

Clinical Notes and Practical Suggestions

What Doctor Shall I Consult?

THE question—What doctor shall I consult? is frequently asked and it seems to be a difficult one to answer. Why? Because the word "Doctor" has lost much of its dignity and significance through its use and abuse. It is a garden, so to speak, that has grown up largely to weeds. Ethical and nonethical practitioners employ it. The title, doctor, may mean a dentist, an optician, a chiropractor, or a reputable physician and in this day and age when only bogus healers advertise and the medical fraternity prohibits it, how is one to know whom to consult?

The average layman does not know that ethical medicine is not advertised. He does not know that there are many "doctors" who have not the right to the title. In the minds of many all doctors are on a par. Doctor means but one thing—one learned in the art and science of healing. A butcher, a baker, a candle-stick maker who has obtained the title through hook or crook usually holds as respectable a place in the community as the reputable physician and is very often much more widely patronized.

What a calamity for humanity to be imposed upon by this vast array of fakers whose only viewpoint is the almighty dollar! They have become so numerous that they are now a very great menace to the public health. How can the public be taught to recognize this great monster that is injecting its venom into every quarter of the country and legislate against it? What can the medical profession do to stop the spread of this great pest?

The medical profession is so shackled by the traditions of an age when the physician was a highlight in every community and so hindered by certain ideals that it sits by in an indifferent attitude and allows this army of charlatans to practice unchecked. How does quackery get a foothold? The answer is, by widespread, untruthful and glowing advertising. There is no question

that the medium of advertising is one of the great moving forces in the world to-day. Even the age-old institution of the church is using it to great advantage.

When the word advertising is spoken in connection with the practice of medicine there comes over the members of the profession a shudder as though some great catastrophe were about to befall them. A great wave of protest immediately is forthcoming, especially from the older members. I dare say one would be considered almost a criminal and be practically ostracized if he were to run his name and specialty in the newspapers. What is there so sinful, so detrimental, so unethical about wholesome advertising of a service so vitally helpful to humanity as that of medicine? Which is the greater crime; allowing untruthful advertising by unscrupulous, unlearned, unconscionable quacks who are preying on the public, or truthful advertising by scrupulous, learned and conscientious physicians who are doing a real social service but, at the same time, are breaking down some of the old traditions and ideals of the profession?

I am not presuming that the advertising could be carried on in any other than a well regulated and systematic manner. I am presuming, however, that the medical profession could by the proper sort of widespread, public information do a vast deal in raising the physical, mental and moral condition of the human race, whereas now it is fostering criminal practices of every description. It is allowing the detrimental forces of quackery to block the energies of the various sciences in the blotting out of great scourges such as cancer and tuberculosis. I almost dare to predict that ethical advertising would do more than laws in ridding the country of charlatans. It would be a great factor in the war waged against deadly scourges and would do much toward producing human fitness and longevity. It

would lead people into the right paths of living. It would put the medical profession on a pedestal. It would take the light of the science of medicine from under a bushel and set it on a hill. We cannot do our greatest good behind closed doors. We must let the world know what we can do for it.

Another factor that would aid the laity in selecting a physician and which, according to some, might come under the category of advertising and thereby be disapproved, is periodic public lectures on health subjects. These lectures could be none other than helpful if given in the language of the laymen and involving subjects which are of vital concern to him. Such public lectures would be well received and would be very beneficial to the public as well as to the medical profession. How often we hear the layman remark on the vague manner and the highbrow attitude the physician assumes in relation to his clientele. The average physician does not make himself clearly understood by his patient, he does not make his patient feel that he is interested in his troubles, he does not take on the brotherly attitude rather than a cold professional bearing.

What the medical man needs is simplicity in word and action and more free communion with his fellowmen. One way of achieving this end is by mingling with them professionally and socially.

L. L. McCoy,

Seattle, Wash.

[There is much merit in Dr. McCoy's suggestions, and it seems to us that there ought to be some way to work out a plan like this along reasonable and ethical lines; if not, our code of ethics, which was promulgated many years ago, needs some sort of revision to make it conform to present-day conditions.

This is a subject of the most vital and practical interest to every physician in the United States and we shall be glad to publish any sound and constructive discussions which our readers send in. The more this question is talked over, the sooner will we arrive at a workable answer.—Ed.]

TREATMENT OF DOGBITES

Anyone bitten by a rabid animal should have the wound cauterized with *fuming* nitric acid *at once* and should receive the Pasteur treatment as promptly as possible. The acid should be used carefully about

the face and not at all near the eyes and is *not* a substitute for the Pasteur treatment.

Those who have not been bitten but have come in contact with the saliva of rabid animals should also receive treatment, as infection may enter through small scratches on the skin or hangnails.

If an animal showing no signs of rabies has bitten people it should be shut up, under the observation of the health officer, for 10 days. If it dies or shows signs of rabies, the head should be sent, properly iced, to the nearest competent laboratory for examination. If the animal is shot it should be through the heart, so as not to mangle the head.—*Health News* (New York).

TO PREVENT DROWNING

Don't swim if you have heart trouble.

Never go in swimming alone.

Don't swim if overheated or tired.

Don't swim on a full stomach. Wait at least two hours after eating.

Dive only when you have accurate knowledge of the depth of the water.

Don't swim until exhausted. Rest on your back and then swim ashore.

Don't struggle if caught in a swift current or undertow. The force of the current will bring you to the surface, then swim in toward shore.

Learn Red Cross life-saving and resuscitation methods. Be capable of saving others as well as yourself.—*Hygien*.

SYMPOSIUM ON THE COLON*

Bacteriology of the Colon

It is quite impossible to make a list of germs that are always and only found as inhabitants of the "normal" colon. It is likewise impossible to prepare a list of germs that when found in the colon are always and only found as "disease producers" in this region. The colon bacillus, which can always be counted on as an inhabitant of this region of our anatomy, while apparently harmless for the most part may at times cause violent disease, while others, such as the typhoid bacillus, or even the cholera organism and the dysentery germs, may be present without evidence of trouble. The colon bacillus, as

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well as the typhoid germ, the cholera spirillum and the dysentery bacilli may be found elsewhere than in the human intestinal tract.

Because of the great number of organisms present in every human bowel the question has arisen whether they may not be an essential to our normal existence, through some symbiotic or other action. Much work has been done in the investigation of this problem and it has been decided that there is probably no direct benefit to man from harboring these microbes. On the contrary, as many of the apparently "harmless" germs can easily be induced to become disease producers, it is probable that man is capable of tolerating them merely because he has developed defensive processes and structures, such as the lymphatic nodes in the ileum and the specialized appendix at the cecum, together with numerous varieties of antibodies in the blood. They may also be the lesser of two evils and prevent the development of more harmful germs.

DR. C. E. M. FISCHER.

Medical Viewpoint of the Colon

There is no essential difference between the treatment of spastic constipation and that of the ordinary atonic variety, the aim in all these conditions being to get away from all cathartics and to have normal bowel movements without the aid of irritants. In this the diet is probably of the greatest importance. Many patients cannot tolerate a coarse diet, including the vegetables with much residue, coarse grains, etc., and it may be necessary to use a more or less bland diet for a time, or even a menu suitable to cases of diarrhea, if the colon is quite spastic.

Enemas of oil are of great value in some cases, given at bedtime and retained over night. Olive oil has been used for this purpose, and the less expensive Mazola has been found equally valuable. Cocoa butter seems to have a greater soothing effect than the others and is especially recommended in case there is marked spasm accompanied by pain.

With this treatment an anti-spasmodic, such as belladonna, seems to be of value and is used in the form of $\frac{1}{8}$ -grain tablets of the extract, giving from four to twelve tablets a day to those patients in whom it is believed that a spasm exists. In those patients leading a sedentary life something

may be accomplished by some form of active exercise. Good results have been reported from the use of the sinusoidal current, but the psychic side must never be overlooked.

In treating ulceration of the colon, particularly in the variety due to amebae, the problem is much more complicated. The cases require prolonged treatment and there is a marked tendency to relapse, in spite of the best preventive measures. Of the various drugs used, chapparó amargosa seems to be entirely harmless and of considerable value.

Tuberculosis of the bowel rarely occurs except as a complication of the pulmonary form of the disease and is not of great importance.

Diverticula of the colon are not rare but have no definite symptomatology, unless diverticulitis occurs and the condition becomes entirely surgical.

DR. A. A. GOLDSMITH.

Neurology of the Colon

If prior to the development of a mucous colitis, constipation was present and has been injudiciously managed by promiscuous catharsis, then this is assumed to be a cause of the mucous colitis. The psychic factors underlying the causes of the constipation, and particularly the urgency for exhaustive catharsis, and the peculiar and bizarre dietary habits and chronicity of the disorder are often overlooked.

The relation between psychic function, for example emotion, and physical reactions is generally recognized. One is no longer mystified at the existence of symptoms when no structural disease exists. The symptoms which occur in conjunction with emotion are logically the result of nervous activity, stimulation of certain parts by some and inhibition of other parts by other nerves. It is not strange, therefore, that we may have some of these symptoms reproduced by stimuli other than emotion; for example, drugs and disease.

Toxic goiter produces sweating, tachycardia and diarrhea. Injection of adrenalin may produce a combination of physical symptoms—tachycardia, shivering, apprehension, cardiac oppression—leading to a condition of indefinable great fear. Pilocarpin produces urgency in micturition and defecation, sweating, diarrhea, and at the height of action of pilocarpin animals evacuate not only large amounts of feces but

also characteristically glairy, tenacious mucus which is as coherent as a band.

However controversial the theories of the selective action of these two systems may be, the fact remains that stimulation of them does produce modification of function of the motor and secretory elements of the bowel. That these systems can be stimulated by psychic influences need not be argued further.

Mechanism plays a very important part in the formation of certain habits, types of behavior and function which may produce various disturbances of the function of the colon.

How can one tell whether or not the symptoms which constitute a mucous colitis are likely to be nervous in their origin? It is evident that constipation and diarrhea alike may result from psychogenic causes. Whether mucous hypersecretion of the intestines is a defense against a neuropathic constipation enhanced by continued use of cathartics, or is the result of stimulation of the parasympathetic system, as is suggested by the action of pilocarpin, seems to be of academic interest only. That the disease may be controlled by proper diet and habits and the removal of cathartics is in no way proof of its cause or pathogenesis. The important factor is the determination of the underlying causes for either constipation, the diarrhea or both. Certainly the condition is not the result of any aggregate neuropathic conditions. Neurasthenia, anxiety neurosis, conversion hysteria, hypochondriasis, and so on do not necessarily produce it. It may, however, result as a specific reaction in any of these conditions, and may depend upon various patterns of behavior.

It does not follow that all cases diagnosed as mucous colitis are neurogenic in origin. It is exceedingly likely that this name covers a multitude of diseases, some of which will be found to have one and others another cause. It is true, however, that a great number occur in neuropathic individuals and that unless one discovers the particular maladjusted conflict which is the cause of the production of the underlying soil a permanent cure will not be effected.

DR. LEWIS J. POLLOCK.

One of the things with which a neurologist is confronted when he first sees a patient is the patient's story, and it usually begins somewhere in the middle of his

anatomy. Upon inquiry it develops that he has usually consulted a gastroenterologist, or has taken the advice of some old woman and has gone through many courses of treatment under the impression that his is a stomach or intestinal case.

It is very necessary to understand the nervous patient and his complaints. The gastrointestinal symptoms often are brought on by a psychic disorder, the entire complex being due to a nervous disorder, but one must always search carefully for evidences of organic disease in making the diagnosis. Very often the organic disease is recognized and the functional disorders ignored, but organic diseases may be overlooked if one is not on the watch for them.

Gastroenterologists should know more about neurology, and the neurologists should know a little more about gastroenterology.

DR. JULIUS GRINKER.

Surgery of the Colon

Radical surgery of the colon has such a high mortality that it should be advised only when absolutely necessary. By thorough preliminary preparation of the patient, by performing certain operations in stages, and by careful postoperative management the mortality can be reduced.

The cecum and the sigmoid are two of the most mobile portions of the digestive tract, and are responsible for many disturbances often referable to the upper bowel. A large, movable cecum, using the appendix as a suspensory ligament, causes reflex symptoms that are often mistaken for gastric ulcer or chronic appendicitis, and a long mesosigmoid may cause similar symptoms. Those who have studied the racial types have demonstrated the futility of fixing certain movable portions of the digestive tract into conceived anatomical locations.

If *ileocecal insufficiency* is due, as in most cases, to a lack of sympathetic control, or perhaps suprarenal insufficiency, no mechanical device known to surgery can avail, for the ileocecal opening is not a valve but a sphincter muscle which contracts upon stimulation of the superior splanchnic nerves, and its exciter cells are situated in the mesenteric ganglion. An inflamed appendix, or adhesions situated close to the ileocecal sphincter, interfering with its proper contraction, may cause loss of tone and in such cases removal of the

appendix or adhesions may allow the muscle to function properly and return to a normal state.

Obstinate constipation, with intestinal intoxication, can be so greatly benefited by medical management that the advisability of surgical treatment is doubtful, except for patients so badly handicapped that they are unable to attend to their usual duties. Good results are obtained in some instances by ileosigmoidostomy but in this operation the ileum must be completely divided and both ends closed. The sigmoid is also divided and its proximal end is brought out through the abdominal incision to allow drainage of the colon. Unless this is done gas will accumulate in the colon and produce marked distension and discomfort. The colonic fistula which results discharges a small amount of mucus but no feces, and is amply cared for by wearing a gauze pad to protect the clothing. This operation is preferable to colostomy.

Preoperative preparation: If no obstruction is present our patient receives 1½ ounces of castor oil three days prior to the operation and an enema each night from that time on. Following the purgative the diet is liquid, such as water, tea, ginger ale, lemonade, orangeade, chocolate and sugar. No proteids are allowed. This changes the intestinal flora. For twenty-four hours before the operation a teaspoonful of paregoric is given every four hours to diminish the intestinal juices and produce constipation. At operation the colon is found empty, or containing only small amounts of fecal material, and there is a minimum of soiling of the operative wound. If there is evidence of partial obstruction the purge is withheld because of the danger of precipitating acute obstruction, and the patient is given an ounce of mineral oil three times daily, and an enema night and morning for five days before the operation. If acute obstruction is present the preoperative preparation must be omitted and immediate operation for relief of the obstruction attempted.

The most urgent *postoperative indication* is to prevent gaseous distension and peristalsis long enough to assure satisfactory union. The patient's reaction to the operation modifies somewhat the course during the first few days, but it is usually well to withhold everything by mouth for five or six days, and during this time to sustain him with the subcutaneous administration

of from 2,000 to 2,500 cc. of physiologic sodium chloride solution per day.

During the first forty-eight hours morphine sulphate, in 1/6-grain doses, every four hours is given. After the second day, and sometimes before, codeine sulphate in 1/6-grain doses is substituted because some patients become quite irrational under the continued use of morphine. The codeine is continued until the end of the fourth day.

If the temperature and pulse remain normal, water is allowed by mouth after the fourth day and the subcutaneous injections are discontinued. Water alone is given by mouth the first day and fruit juices are added for the next two days. The pulse is the best guide as to when fluids may be allowed by mouth. If the rate remains down water may be allowed. Before this, relief of thirst is most satisfactorily obtained by biting sliced lemon and rinsing the mouth frequently with cleansing mouth washes and orange juice.

DR. CHARLES J. DRUECK.

WHEN TO USE THE ELECTRIC FAN

The sensation of heat is not a matter of degrees of temperature alone but also of humidity.

At ordinary temperatures air movement promotes comfort, but not when the air is very cold or when it is above the temperature of the body. When it is cold a breeze makes it "colder," and when the thermometer registers 100° F. or more the air feels hotter when it is in motion; and if there is much moisture in the air the same result will be found at 95° F. or less.

The place where the fan does good work is between 80° and 100° F., especially when the air is moist.

W. A. EVANS,

(Abstracted from *Chicago Tribune*.)

BRAIN SIZE AND SOCIAL CONDITIONS*

The size of the brain varies with social conditions, but these variations are slight. Ignorant persons in the lower strata of society have, as a rule, brains weighing from 1410 to 1420 Grams. The brains of intelligent persons of the better classes weigh from 1425 to 1450 Grams.

The city morgues receive the bodies of those who, for one reason or another, have failed in life's work—the social and eco-

*Notes from a lecture before the American College of Physicians, at Cleveland, O., Feb. 24, 1927.

conomic misfits. Under normal conditions these people come from the decidedly less intellectual groups and it is rare to find a brain weighing more than 1420 Grams.

During the war, almost everyone who desired to do so could find employment, even though not possessed of high mental ability. The male population was largely in the Army. Under such conditions, those who came to the morgue were the actual dregs of society and the brain weight fell to an average of 1410 Grams.

After the demobilization of the soldiers, conditions began to change and we saw the brain weight begin to rise. Several months before the industrial and economic crisis of 1922 we were able to predict that it would come, as we saw the weight of the brains of those who came to the morgue rise to the unprecedented figure of 1440 Grams, indicating that persons of high intelligence were being forced to succumb to the increasing pressure of unemployment and retrenchment. As conditions began to return to normal we were again able to predict this change by noting a decrease in the brain weights.

The average weight of the brains of the unfortunates whose bodies reach the morgues may be used as a reasonably accurate barometer of forthcoming economic conditions.

T. WINGATE TODD,

Cleveland, O.

CONSTIPATION

One of the most abused, ill treated and erroneously treated maladies common to mankind is that condition known as constipation.

Before we proceed to advise our patients to take some form of medication, it is well to find out what is causing the symptom—as we know that costiveness or constipation is a symptom and not a disease.

We must define constipation as a condition in which the evacuations from the bowels are incomplete or infrequent, more or less fecal matter being retained in the intestines. Such being the case, we would do well to consider the etiologic factors before proceeding with medication to increase peristalsis. While it is true that in the management and treatment of all diseases and conditions the cause should be sought and treated, yet this malady is so common

that its cause is very frequently overlooked.

A few of the etiologic factors are:

- (A) Sedentary habits.
- (B) Forgetting or neglecting to answer the call of nature.
- (C) Indiscretions in diet.
- (D) Anemia.
- (E) Gluttony—overeating.
- (F) Diseases of the liver, stomach and intestines.

In cases due to causes A to E inclusive, constipation can be cured by correct living, carefully regulated diet and exercise, with an occasional laxative.

Should disease of the liver be the causative factor, the treatment should be directed toward the liver condition, in which event the constipation would take care of itself.

Another common thing: if a patient complains of a pain in his side, constipation and nausea, the first treatment recommended is a cathartic of some sort. The result is frequently a ruptured appendix, followed by peritonitis and often death. This shows the necessity for using care.

Females are prone to the injudicious use of the enema, the abuse of this doing more harm than good. While I am not adverse to its use, I do condemn its *continuous* use. Atony of the intestines is a common result from the abuse of the enema.

In atony of the intestines, laxatives and cathartics tend to make matters worse, resulting in a chronic condition necessitating care and treatment constantly. Medicines to stimulate the musculature of the intestines are indicated in this condition so that peristalsis may continue in a normal manner.

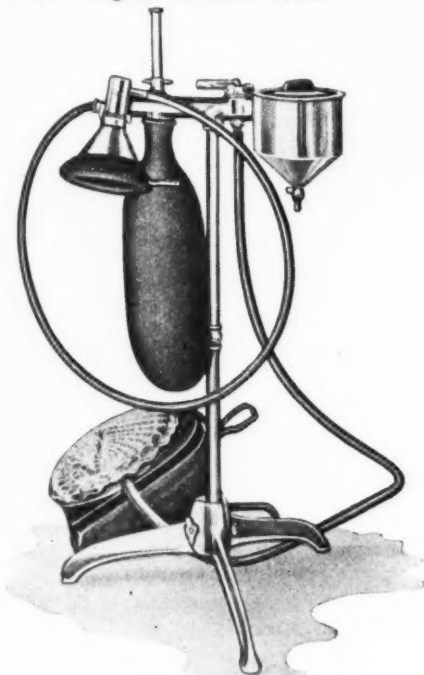
Giving cathartics, purgatives, laxatives and enemas for atony of the intestines is similar to the foolishness of a man owning a horse which, being underfed and undernourished, becomes weak. The owner takes a trip and, as this horse is in such poor condition, cannot travel very fast, so he strikes the horse with a whip. The horse manages to get up enough strength to run a little way. Soon his weakened condition forces him to slow down. The owner strikes him again with the whip. He again runs a little way. This goes on for a while until the horse drops finally from exhaustion, unable to resume his travel. Such is the condition we meet with when we are

too free with our enemas or other form of medication before getting at the root of the evil.

E. SILVERMAN,
U. S. Marine Hosp. No. 2, Chelsea, Mass.

ANALGESIA AND ANESTHESIA IN OBSTETRICS

I have been using a method for obtaining analgesia and anesthesia in obstetrical cases which has given excellent results.

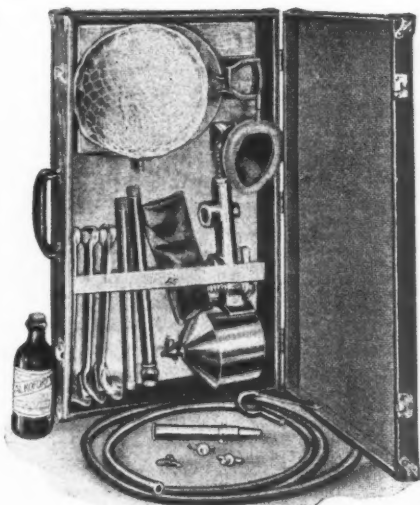


Hinkle Anesthetic Machine

The technic is as follows:

When the os is dilated to the breadth of three fingers, I inject hypodermically 1/6 or 1/4 grain of morphine, dissolved in an ampule containing 2 cc. of a 50-percent solution of magnesium sulphate. I repeat the dose of magnesium sulphate alone after 20 minutes. If the patient is very nervous and does not respond to the morphine, I give 1/100 grain of hyoscine hydrobromide.

For deeper anesthesia, I use the Hinkle anesthetic machine, as illustrated, keeping the patient on the border line between analgesia and anesthesia until bulging of the perineum indicates that the child is about to be born, when complete anesthesia is produced.



Machine Packed for Transportation

This machine is a small, portable affair and works on the nebulizer principle. A foot-operated bellows connects with the nebulizer which vaporizes a mixture of 1 part alcohol, 2 parts chloroform and 3 parts ether, known by the trade name of Alkaform. This anesthetic seems to be perfectly safe for the patient, is economical and can be used in the home. The face piece or inhaler is held by the patient or an assistant, and as the supply of gas is controlled by the foot of the obstetrician, he does not have to break his aseptic technic. An oxygen tank and another rubber bag can be attached to this machine, if desired, so as to be ready for emergencies.

My experience with this method has been confined to private practice, mostly in the homes of the patients, but I should like to see it worked out on a larger scale by someone who has ampler clinical facilities.

W. J. HARNED,

Bethany, Mo.

THE CHILD WHO STEALS

Stealing is a harsh word to apply to the acts of children. It is associated so closely with a criminal career and one so naturally thinks of jails and prisons, highwaymen and robbers, that childhood and this type of delinquency seem almost incompatible.

On the other hand, problems are never solved by dodging the issue. "Of course, we don't consider it stealing when Johnny

takes things belonging to me or to other members of the family," said one mother in defense of her 8-year-old boy; and another mother argues that "taking food or pennies is not considered pilfering." Some times the juvenile offender is acquitted by the parent on the ground that "he does it in such a cute way" or that "he is so unselfish—he never uses for himself the things he takes but always gives them away," or "you can't expect a child so young to understand what he is doing."

These are only a few of the numerous excuses by which parents permit themselves to be deceived. Stealing must be considered stealing as soon as the child has developed mentally and socially to the point where he is capable of differentiating his property rights from those of the people with whom he comes in contact. It must not be forgotten that most children are warned at an early age that such acts are against the wishes of their parents, without being given any appreciation of the social code called honesty. In such cases the act of stealing is nothing more than disobedience and must be treated as such.

Children naturally absorb from the environment in which they are living a tendency to conform with the social customs of that environment, and they can also give an intelligent reason why such social customs are enforced. When a child reaches this stage in his development he must be held responsible for his conduct, and it is grossly unfair for parents to minimize its significance by refusing to face the issue.

D. A. THOM,

Boston, Mass.

DOCTORS

My own notion is that there are more fine men to be found among the doctors than in any of the other professions. The rigors of the job bring out admirable qualities.

A physician simply cannot survive without curiosity.

People come and plump their riddles in his lap.

Naturally, I must admit the existence of the physician who tries to get by with a formula. There is the man who says, "Fresh air and thyroid." Or "Cut out the starches."

But certainly there is no profession in which the change of thought is more apparent from day to day. A clergyman could sleep for twenty years and come back to

his pulpit and nobody in the congregation would find him any less adequate in his job than before he went away. I think a lawyer might still get by even after so long a slumber. I've seen a few continue to conduct their jobs without even going to the trouble of waking.

But where would a doctor be if he was ignorant of developments in his profession for even as short a period as five years? To be a good physician a man must be first of all a sceptic. And it is my experience that true kindness comes only from those who meet all human emotion and experience with questions.

HEYWOOD BROWN,

In *New York World*, Oct. 20, 1926.

THE NATURE OF MILK AS FOOD

Milk is said to be a perfect food. By this is meant that it contains all the essential elements, which if taken in sufficiently large amounts allow normal growth and symmetrical development. Health and even the maintenance of life itself may depend on the presence of certain indispensable constituents of diet.

The adequacy of a food or of a diet depends on its containing:

1.—Enough of the right sort of material to build up and repair the tissues of the body. The chief body-building substance is called protein. Milk, cheese, meat, fish, and eggs furnish the most valuable forms of protein, because they are constituted most like the proteins that form the principal basis of the structure of the muscles and organs.

2.—A variety of mineral substances which are needed in the growth, maintenance, and functioning of the parts of the body, such as the skeleton, lungs, brain, thyroid gland, and muscles, and the blood and other body fluids.

3.—An adequate amount of certain substances whose nature is not fully known but whose presence in the diet has been demonstrated to be necessary for health and growth in the lower animals and in man. These substances, known as vitamins or accessory diet factors, are indispensable elements in food, although sometimes they are present only in minute amounts.

4.—Enough material to furnish the energy required by the body. Fat, starch, and sugar are the chief energy foods, and these are transformed in the body into

energy for its activities and into body heat. A large part of the protein in food is used, even during the growth period, for energy processes.

5.—Only substances that are not poisonous to the average individual and that will allow normal digestive processes.

In addition, to be properly digested and of the utmost nutritive value, food should be of pleasing taste and of a consistency and appearance similar to other foods in customary use.

Clean milk fulfills all these requirements better than any other single article of food.

DOROTHY REED MENDENHALL,

Washington, D C.

THE EFFICACY OF VACCINATION

A number of years ago, while practicing in the Republic of Mexico, I was called to attend an American woman in confinement. She seemed to be ill when I first saw her, but her labor was normal.

When I called the next day she had a suspicious eruption which, on the second day, was unmistakably small-pox.

No nurses or other outside help, other than her husband, were available and there was no one to whom the baby could be turned over for care.

Immediately upon making the diagnosis, I vaccinated the infant who, a few days later, developed typical vaccinia. The child remained constantly with the mother, who nursed it regularly, as there were no facilities for artificial feeding, and the infant did not contract small-pox.

This, of course, is only one case, but it illustrates forcibly the prophylactic power of vaccination.

GEO. B. LAKE,

Chicago.

SOME IMMUNOLOGICAL ASPECTS OF GONORRHEAL INFECTIONS OF THE MALE

1.—Practically all individuals have the power to generate gonococcal antisubstances.

2.—The readiness with which this function responds to the stimulus of infection differs in different individuals.

3.—It is rather slowly developed in all and decidedly so in some, though general physique has little influence upon it as a rule.

4.—Blonds as a class are extremely tardy in this regard.

5.—At its best it never reaches true immunity.

6.—It is a highly selective process in which antibodies are formed only for the particular strain involved.

7.—Under certain conditions it will develop sufficiently to eradicate the infection.

8.—In repeated infections by the same strain there results either an antibody balance or a local toxin densensitization which makes it possible for the germ to remain viable for long periods without the other evidences of infection. In other words, the patient becomes a "carrier."

9.—It renders superinfection with the same strain almost impossible; but it does not reduce the probability of a second, or greatly reduce the possibility of a third subsequent infection by the same strain.

10.—It offers no protection against heterologous superinfection or subsequent infection by another strain.

11.—It is probably the most delicately balanced antibody process of which we have knowledge.

12.—It can be delayed or practically obliterated with the utmost ease.

13.—It is commonly augmented by the onset of such complications as epididymitis and almost obliterated for a long time by the graver complications of a systemic character.

14.—In this latter characteristic it accords with our experiences in the use of vaccines, in that overwhelming quantities of antigenic substances check antibody formation.

15.—On the other hand, the tardiness of the process is probably due to the usual extremely limited absorption of antigenic substances.

16.—It, therefore, in the absence of distant foci, is dependent upon the absorption of stimulating substances from the mucosa involved; and anything that retards this absorption retards the antibody forming responses.

17.—It, consequently, like other immunity processes, is a body process and not an essentially local one.

18.—Its result is the formation of substances that range from the feeblest inhibitors of gonococcal proliferation through the various gradations to more or less

rapid gonococcicidal action; from bacteriostasis to bacteriolysis.

19.—Once having been started, it progressively and increasingly continues unless retarded or checked by some one or several of the untoward events that so easily upset it.

20.—If repeatedly retarded by such events it less easily recovers its progressive course, so that chronicity of infection is the result.

21.—Contrary to the general impression, articles of diet, other than alcohol, have no discernible influence upon it.

22.—Alcohol has a very definite influence in retarding or checking the process of gonorrheal antibody formation. (The reputed but poorly authenticated cures of gonorrhea during prolonged alcoholic debauches would suggest the wisdom of a closer study of alcohol's effects. If such cures do occur they are probably due to the checking of phagocytosis with the consequent liberation and absorption of larger quantities of antigenic substances than occur when phagocytosis is not interfered with.)

23.—Anything that in anyway traumatizes or devitalizes the affected mucous membrane checks antibody formation and retards cure.

24.—The same is true of the tissue processes that take place during sexual excitement, with or without coitus, as well as those that occur during menstruation.

25.—Nocturnal erections or emissions influence it little if at all.

P. S. PELOUSE and F. S. SCHOFIELD,
Philadelphia, Pa.

CHILD HEALTH STUDY

The American Child Health Association, at its annual meeting held in Washington, D. C., May 9 to 11, brought together a representative group of those who are seeking to make life a safer and happier affair for American children.

Some of the important keynotes of this conference were:

Strong recognition throughout the program of the need to interpret all the facts and findings of science and education to

parents who, in the final analysis, are the real practitioners in child health. As Miss Grace Abbott of the Children's Bureau expressed it: "There is no substitute for an instructed parenthood."

The growing evidence that men as well as women are becoming interested in child problems—that fathers are parents as well as mothers and that fathers are awaking to their responsibility in the broad sense of the term.

That health is beginning to be interpreted in the largest sense. "The whole child" was one of the most frequent and significant terms used throughout the sessions.

The strong emphasis made throughout the conference on the normal child and the factors that go to make him normal.

(Concluded from p. 620)

having secured the history as above given, you also obtain the following data: Rather obese patient who does not show loss of body weight. Temperature is 101.4° F.; pulse 110; respiration 30. A rather hurried examination shows the patient's tongue to be dry in the middle. There is tympanites of moderate degree and sensitiveness of the abdomen to rather deep pressure. The sensitiveness is especially marked in the epigastrium. Muscular defense at that place is pronounced. The laboratory reports 18,000 leucocytes, bile and a trace of albumin in the urine.

As the patient is somewhat collapsed you, as the surgeon, taking all the data into account, admit the possibility of an infection of the gall-bladder with rupture of that viscus; yet, on account of the special sensitiveness and muscular defense in the epigastrium, you are more inclined to assume a perforated peptic (duodenal) ulcer.

As soon as the abdomen is opened you find turbid, sero-sanguinous fluid coming from beneath the liver. To your great surprise, neither the gall-bladder nor the stomach or duodenum show any evidence of ulcer, perforation or pronounced inflammatory disease. There is no doubt that the preoperative diagnosis was wrong.

Requirement. Describe further operative steps, if any, and give reasons.

The Leisure Hour

Conducted by GEORGE H. CANDLER, M.D.

News From the Front

THIS is being written at the training camp for Medical Reserve officers of the Army, at Camp Snelling, Minnesota.

About 350 of us are here for two weeks of medico-military training and in the group are some of the most prominent physicians in the Middle West. It's an inspiration to meet such fellows in the intimacy of camp life.

So many old associates of War-time days and the Mexican border are here that it is a veritable class reunion.

The Regular Army officers on duty are impressing upon us the fact that they recognize us as vital parts of the same great machine to which they belong and they are very cordial and helpful.

It is no place to loaf. The day begins at 6 A.M., with setting-up exercises and is filled with business until 3:30 or 4:00 P.M. and sometimes there are problems to solve in the evening.

A famous Infantry drill-master puts us through the foot movements for an hour every morning—and makes us like it!

In the afternoons we go out on map problems and tactical exercises.

There is a fair golf course here and tennis courts for those who enjoy that sort of thing, and St. Paul and Minneapolis are near for those who crave the "white lights."

The mess is good and the bunks are comfortable. And how we can eat and sleep after days in the open air!

We are learning to know each other—the men with whom we would have to work in an emergency—and we are learning about the things we would have to know if we were called to the colors. Even those who saw a good deal of service during the War can still learn many things, for the Army is not a wooden Indian. It is *alive*, and like all living things it is constantly changing.

A good many officers of the Medical Reserve Corps are neglecting the opportunity to come to camp, and others who should be

in the Corps are not officers at all. This should be remedied at once. Those who held commissions during the War and relinquished them should go after them again; and those who have had no military experience should be getting some. (You can get full information by writing to the War Department, Washington, D. C.) You never can tell what may happen and it should be embarrassing to be caught with our nether garments in a dependent position.

Some misguided doctors feel that they can't afford to take a vacation, and there aren't many places where one can take a healthful and stimulating holiday and *be paid for doing it*. In fact, we know of no other place than the summer training camps for Reserve Officers.

Get into the game if you're not already in; and if you *are* in, *play* it by going to the Camps. You will go home wiser, better, and happier—rested, refreshed and stimulated—with a sense of having done yourself a kindness and performed a patriotic duty at the same time: Also you'll be better prepared to combat the pacifist propaganda which is being carried on all-too-actively.

It's a great life! We hope to see you at camp next summer.

GEO. B. LAKE.

TELL UNCLE SAM YOUR VACATION PLANS

Now comes the season when milk bottles and unfolded newspapers clutter around the door of our neighbor who has gone on his vacation without notifying the milkman and the newsboy to stop delivery. We indulge in a little smile of superiority at the expense of our forgetful brother, although we may do the same thing ourselves next week, and perhaps a passing yeggman may make a mental note of the address as a good place to visit on some dark night in the near future. There is another phase

of the absentee's forgetfulness which is often more tragic than humorous in its consequences, and that is the failure of the vacationist to notify the post office where to send his mail, so that mail of great importance is held until he returns, or is returned to writer, often with distressing results.

This is also vacation time in the post office. Under the law, letter carriers must be given fifteen days vacation, exclusive of Sundays and holidays. But vacation or no vacation, the mail must move and deliveries must be made. During the absence of the carrier, delivery is made by a substitute who is often limited in experience and may be wholly unfamiliar with the district and those who live on it. Under the best circumstances delivery is not an easy task for the experienced carrier and when a substitute is sent out on the district, delivery is often impossible because of the failure of patrons to cooperate with the post office by providing a proper receptacle for their mail, with the name of the resident plainly shown above the box.

It is particularly desirable that the names of visitors, who expect mail, shall be placed over the box during the period of their stay. The Postmaster says patrons can do a great deal to expedite delivery and make a hard, grinding task easier for the substitute by furnishing a proper mail box with the names plainly shown over it, particularly during the vacation season.

THE POSTMASTER.

DIAPHORETIC

In colonial Massachusetts, the board of medical examiners for Army doctors was famous for its severe examinations.

In reply to the question, "what would you do to sweat a case of rheumatic fever?" one candidate replied: "Turn the patient over to this examining board."

—Notes & Abstracts

Two strangers in a first-class railway carriage had got into friendly conversation. The windows had just been let down on account of the closeness of the day, and the desultory chatter turned to the subject of ventilation.

"I make it," said one of the passengers, "an invariable practice to advise people to sleep with their bedroom windows open all the year round."

"Ha, ha!" laughed the other; "I perceive you are a doctor!"

"Not at all!" was the confidential reply. "To tell you the truth, strictly between ourselves, I am—a burglar!"

"What did you put in this prescription?"

"That I can tell only to the doctor," said the druggist.

"The doctor wants to know. Seems I gave you a Chinese laundry ticket and you filled that."

Farmer: "Doc, I am working like an ox, eat like a wolf, am tired like a dog, and sleep like a bear."

Doctor: "In such a case you would better consult a veterinarian."

Billy: "Papa, are caterpillars good to eat?"

Father: "O, don't talk about such things at the table."

Mother (getting curious): "Billy, why did you ask that?"

Billy: "I just saw one on papa's lettuce, but it's gone now."

From *Children, The Magazine for Parents*.

One evening, thinking to test my small son's knowledge of arithmetic, I asked:

"If our next-door neighbor has a wife and baby, how many are there in the family?"

Johnny thought for a while, then answered:

"I know. There are two and one to carry."—*Pharmaceutical Advance*.

Diagnostic Pointers

BILIARY DISEASE OR GASTRIC ULCER?

Heavy exercise and riding on a train or in an automobile cause exacerbation of the symptoms of biliary disease but do not increase those of gastric ulcer.—DR. M. E. REHFUSS, of Philadelphia.

INGUINAL GRANULOMA

Any vulvar lesions which resist ordinary treatment should be suspected of being granuloma. Antimony is a specific for this condition.—DR. JOHN A. MCGLINN, in *Am. J. Obst. & Gynec.*

PELVIC BACKACHE

Backache in gynecologic conditions is due chiefly to pelvic congestion. Slight posture defects may favor its development.—DR. FRANK W. LYNCH, in *Am. J. Obst. & Gynec.*

PREGNANCY AND DENTAL CARIES

Pregnancy, of itself, is not a cause of tooth-decay.—D. E. ZISKIN, D.D.S., in *Am. J. Obst. & Gynec.*

RECTAL FISTULA AND TUBERCULOSIS

At least 20 percent of all rectal fistulas are tuberculous. Nearly all fistulas in patients with active pulmonary tuberculosis are due to the tubercle bacillus, and 2 to 3 percent of such patients have fistulas. Guinea-pig inoculation is the most reliable diagnostic test.—DR. G. L. LESLIE, in *Canad. M.A.J.*

GENITAL TUBERCULOSIS

An indurated prostate, in a young man, should immediately arouse suspicion of genital tuberculosis.—*Urol. & Cutan. Rev.*

COMA

Coma without injury generally suggests cerebral hemorrhage, uremia or diabetes; but do not forget brain tumor! Hemorrhage within a tumor may simulate apoplexy.—DR. C. E. LOCKE, in *Ohio State M.J.*

TESTING INTESTINAL MOTOR FUNCTION

Immediately after dinner, let the patient chew and swallow four or five 5-grain tab-

lets of charcoal, washing them down with water. Then watch the stools.

If the charcoal is passed the next morning, and does not keep coming out for 2 or 3 days, there is no intestinal stasis. If it is not passed before the second morning, the patient is seriously constipated. Intestinal regularity and efficiency are not synonymous.—DR. ARTHUR F. HURST, in "Constipation and Allied Intestinal Disorders."

CHILDREN AND THE MOVIES

Prof. Walter B. Pitken, of Columbia University, who is a critic of movies for children, says that the pictures may be harmful to the youngsters in three ways: They may depict things which suggest false standards of living; or inculcate unsound ideas about success; or simply broadcast the wrong kind of information about people.

ENCEPHALITIC APOPLEXY

Apoplectiform attacks, occurring in young people free from syphilis, endocarditis, and brain tumor, may be due to encephalitis. If so, the resulting palsies clear up rapidly.—DR. GEO. S. PRICE, in *J. Iowa State M. S.*

EYE DISEASES

Every complaint of the eyes is a case for immediate and complete diagnosis, as the simplest-appearing case may result seriously and delays or mistakes in diagnosis cause loss of sight to thousands.—DR. E. R. CROSSLEY, in *Bull. Chicago M.S.*

POPULAR ERRORS REGARDING DISEASE

Contrary to the general opinion, cancer is a painless disease. When pain occurs in connection it is too late to help much, as the pain is due to secondary infection or to pressure upon important structures.

The cachexia also popularly associated with cancer is likewise a result of secondary conditions and is a late symptom.

Pure tuberculosis does not cause a high fever. That is due to secondary septic infection.

Bright's disease and heart leaks are symptomless in their early stages. When they begin to cause disability the cases are far advanced.

The only way to detect these conditions when they are curable is by *periodic physical examinations*.—DR. W. A. EVANS, in *Chicago Tribune*.

SMALL-POX VACCINATION REACTIONS

Four types of reactions may follow vaccination against smallpox:

Vaccinia, appearing about the *third or fourth day*. (Typical "cowpox", well known to all physicians.) This indicates lack of immunity.

Vaccinoid, appearing about the *second or third day* and resembling vaccinia, except that it is more rapid and milder. Indicates low immunity.

Virus Reaction, appearing on the *fourth day*. A papule with a slight areola. Due to faulty technic or poor virus. *Repeat the vaccination*.

Immune Reaction.—This appears in persons who have had smallpox or been successfully vaccinated, and consists of an area of *redness* surrounding the point of scarification, appearing in from *12 to 60 hours* (usually at its maximum in 24 to 36 hours) after vaccination and promptly subsiding. Indicates a high degree of immunity.—DR. W. C. O'DRISCOLL, in *J. So. Carolina M. A.*

CYSTITIS

In a case of cystitis that does not improve under proper local treatment, you are probably dealing with a tumor, tuberculosis or a pus kidney and there is no time to waste.—*Urol. & Cutan. Rev.*

STATUS LYMPHATICUS

Infants and children presenting the condition of status lymphaticus have a swollen, pale appearance, are frequently fat, have a low resistance to disease and often die suddenly during acute infections. Some have died while bathing or after insignificant wounds, a slight whipping or following mild emotional excitement.—DR. I. A. ABT, in *M. J. & Rec.*, Nov. 3, 1926.

PROGNOSIS IN NEPHRITIS

A gloomy prognosis in Bright's disease depresses the patient and leads the physician to an unwarrantable attitude of helplessness. Strenuous efforts should be made to check the progress of the disease and restore the organs to normal, so far as possible. Attention must not be focused upon the kidney alone, but the whole patient must be considered.—DR. CURRAN POPE, in *Med. Standard*.

URETERITIS

Inflammation of the ureters frequently occurs in conjunction with other abdominal and pelvic diseases and this fact should not be forgotten in making a diagnosis and prognosis and in outlining the treatment.—DR. GUY L. HUNNER, in *Am. J. M. Sc.*

CARDIAC DECOMPENSATION AND TOXIC GOITER

A decompensating heart and thyrotoxicosis may be present in the same patient. Auricular fibrillation occurs in both conditions. If there is no edema the fibrillation is probably due to thyroid disease. If edema is present it may be the result of both affections.—DR. FRANK O. DENEEN, in *Illinois M. J.*



Current Medical Literature

THE PSYCHONEUROSES

Psychoneurotic disturbances are generally considered purely functional in character. Prince defines the condition as a perversion of normal psychic reactions.

Dr. Frank R. Starkey, of Detroit, Mich., says, in *Ann. Clin. Med.* for March, 1927, that there may be an organic basis in many cases. Disorders of the viscera may produce profound effects on the vegetative nervous system, even when these are not consciously recognized. The endocrines, too, are always more or less involved.

Freud lays too much stress on sex as an underlying factor. A psychoneurosis can be built on any one of the primitive instincts. Shell shock is based on fear.

These conditions are based on wrong habits formed in early life. Improper mental hygiene, wrong sex teaching, luxury, idleness, wrong home training, overdependence on the parents, fantasizing and many other things may initiate psychoneuroses; and advancing age, the climacteric or mental or physical traumas may uncover them.

These individuals are supersensitive; respond excessively to pain, fatigue, exhilaration and other excitants. They like to be considered exceptional; are fond of their idiosyncrasies which they strictly maintain; show irritability of temper; shirk their daily duties or, per contra, are zealots; are tyrannical and surround themselves with self-manufactured complexes to shield themselves from disagreeable situations. Various vasomotor phenomena are encountered: blushing and blanching under slight emotion; cold, clammy, blue extremities accompanied by dermatography—so-called neuro-circulatory asthenia.

Fear and anxiety are usually conspicuous, and in these cases we can recognize definite derangements of the thyroid or suprarenals or both. Tachycardia, excitement, restlessness, irritability are evidences of increase in the function of the glands. Asthenia and prostration point to a decrease in their function; headaches, vertigo, sense of a band about the head or tension or other distress in the head, are always invariable symptoms.

Exaggerated ego; insincerity and either unscrupulous or exaggerated ideas of honor, propriety, etc., are apt to be seen; also dissociation of personality. Various phobias, of closed places, of open places, of high places or low places, certain foods, certain people, fear of contamination and of almost any conceivable thing or idea, may be seen.

Introspection, lack of adjustment to environment, misdirected energy, suspicion,

emotional conflicts and various behavioristic peculiarities are common, as well as motor and sensory disturbances, paralyses; anesthetics; paresthesias, discomfort and distress; disturbances of memory, from slight inability to recall certain things when desired, to complete amnesia of longer or shorter duration; also compulsion neuroses in which the individual is unable to refrain from performing certain acts.

A careful and methodic history, going back to earliest childhood, must be taken, and this must not be hurried or skimped in any way.

The physical examination, too, must be painstaking and exhaustive. Psychoneuroses may simulate almost any disease, but these patients frequently do have real pain and real diseases, and we must not overlook these, but give special attention to the endocrines and the genitourinary tract and to a search for pulmonary tuberculosis.

Prophylaxis of these conditions, beginning in early childhood, is the best treatment. Prognosis depends upon how far the patient will give the physician his confidence and cooperate with him. Psychotherapy and the "work cure" give best results. Surgery should be a last resort in these cases and used only to save life.

EPHEDRINE IN HAY-FEVER AND ASTHMA

The hay-fever season is getting in its work and most physicians are looking for help.

Drs. Simon S. Leopold and T. Grier Miller, of Philadelphia, have done some interesting work in this type of cases and reported their results in *J. A. M. A.* for June 4, 1927. They used ephedrine, in doses of 50 to 100 mgm. ($\frac{1}{2}$ to $1\frac{1}{2}$ grains), as needed, given, as a rule, by mouth.

In this article they report their results, in detail, after treating 59 cases of asthma and 11 of hay-fever. Tabulations are used and several cases are reported in full. They conclude that:

- 1.—Ephedrine produced complete temporary relief in 56 percent of the cases of asthma and 63 percent of the cases of hay-fever.

- 2.—In asthma the best results were obtained in the allergic and reflex nasal cases (84 and 100 percent, respectively), and least satisfactory results were obtained in the infectious group, although even in this series a sufficient number obtained complete temporary relief (38 percent) to justify its trial.

- 3.—Of all the patients with nasal obstruction (three reflex nasal cases and

nineteen allergic ones), 86 percent were completely relieved.

4.—In addition to producing bronchial dilatation, ephedrine orally administered produces contraction of the nasal mucous membrane.

5.—The oral administration of ephedrine in cases of hay-fever had advantages over its local application in the nose in that the local irritating effects can thus be avoided and in that, for the patient, it is a simpler method of administration.

LOBELINE

Drs. F. R. Curtis and Samson Wright report in the *Lancet* for December 18, 1926, their results in studying the action of lobeline.

They find that this drug markedly stimulates the respiratory center and causes lowering of the respiratory threshold to carbon dioxide, with a considerable and persistent increase in pulmonary ventilation. At the same time it depresses the heart and causes other symptoms similar to those produced by nicotine. These latter effects suggest that it be used with caution in cases of myocardial disease.

When ether causes the breathing to become slow and feeble, recovery promptly follows the injection of lobeline. It also acts well after doses of morphine which slow the breathing. If complete paralysis of the respiratory center is present, lobeline is much less effective; but its power increases if the circulation is stimulated with epinephrin at the same time.

TREATMENT OF COMMON WARTS WITH NEOARSPHENAMINE

Little is known about the causation of the various types of warts, including the ordinary verruca vulgaris. That the latter is infectious seems quite probable. Authors discussing the treatment of common warts place little emphasis on the use of arsenic, although it is mentioned in all textbooks on dermatology. Many patients suffering from diseases of the skin with a verrucous element are benefited by the administration of arsenic. No doubt there are many cases in which the intravenous injection of neoarsphenamine is justifiable in the hope of accomplishing, by intensive arsenical treatment, what may not be possible with milder forms of arsenic.

In *Archiv. Derm. and Syph.* for October, 1924, Dr. H. C. Lindsay says: "A patient with multiple warts of the scalp was recently treated unsuccessfully by me with various therapeutic methods, including the roentgen ray, fulguration and mercury (the latter both externally and internally). The largest lesions had been removed, but new lesions continued to appear. After unsuccessful administration of solution of potassium arsenite (Fowler's solution) I tried heroic doses of sodium cacodylate, but with

no result. As a last resort, my patient was given an intravenous injection of 0.6 gm. of neoarsphenamine. At the end of a week the lesions had all disappeared, although there was a slight recurrence at the end of three weeks. A second similar injection was then given and was followed by permanent recovery."

LIVER EXTRACT AND HYPERTENSION

Extracts of various animal tissues, when injected intravenously in animals, cause a temporary fall of the blood pressure. This is due to the histamine content which causes a dilatation of the capillaries.

Dr. W. J. MacDonald, in the *Wisconsin M. J.* for January, 1927, states his belief that the whole problem of blood pressure balance—hypo- as well as hypertension—may be found to depend upon the amine equilibrium of the body.

In working with liver extracts he has found that these substances, whether injected hypodermically, intramuscularly or intravenously, cause effects similar to those produced by histamine, but *much more prolonged*, suggesting that these extracts contain some other depressor substance or substances which reenforce or activate the histamine.

In a group of cases treated, the average pressure was 194/110. After 15 days treatment it fell to 142/86 and gradually returned to the former level when treatment was discontinued. A second course of injections caused a more rapid, marked and persistent decrease in the pressure; and where a third course was given these conditions were even more noticeable.

Best results were obtained in cases of so-called essential hypertension and in those showing no cardiac or renal involvement. The treatment failed in cases of cardiac decompensation and renal disease.

THE ENDOCRINES AND CHRONIC OBSTIPATION

Dr. Hans Stindl, writing in *Wien. Klin. Wchnschr.* for December 9, 1926, classifies chronic obstipation as "proctogenous" (when the cause is in the rectum or sigmoid) and "ascending" (when the stasis begins in the cecum and involves the ascending colon). The former type constitutes 60 to 70 percent of all such cases.

He believes that the proctogenous types are due to a disturbance of balance in the innervation of the anus and rectum—a hypo- or hypersensitivity—causing spasms or atony of the musculature. The ascending types are secondary to disturbances in the rectum. Cases showing hypersensitivity with muscular spasm constitute the picture of "spastic constipation."

Obstipation is almost always present in myxedema, the functional pelvic disorders of adolescent girls and young women and in other conditions of endocrine dysfunction.

tion, and the author believes that the types of chronic constipation under discussion are due to functional disturbances in the vegetative nervous system, the result of disorders of the glands of internal secretion.

NEPHRITIS

To the layman and, unfortunately, to some physicians, nephritis is simply Bright's disease, and all cases call for the same treatment.

In the *Illinois M. J.* for February, 1927, Dr. W. McKim Marriott, of St. Louis, emphasizes the importance of recognizing the two distinct varieties of nephritis, as their treatment is very different.

In *parenchymatous* nephritis there is an alteration in body chemistry and in the permeability of the cells.

In *glomerular or hemorrhagic* nephritis the smaller capillaries throughout the body are damaged.

Both varieties are due to infection and progress as long as the cause remains.

Parenchymatous nephritis comes on gradually. Edema develops slowly; the urine decreases in amount, becomes dark colored, shows a high specific gravity, with large amounts of albumin and casts but no blood and little or no chlorides. Neither acidosis nor uremia occurs. Secondary anemia is an early symptom. Blood pressure and eye grounds are normal.

The infectious cause is usually found in the nasal sinuses, especially the maxillary antrum. The infecting organism is usually a hemolytic staphylococcus.

The treatment embraces a diet high in proteins (2 to 3 Grams per kilo of body weight per day for an adult and $2\frac{1}{2}$ to $3\frac{1}{2}$ Grams for a child), and should furnish 60 to 80 calories per kilo per day; moderate restriction of salt, but not of water (unless the edema is very severe); blood transfusions, especially when the patient is anemic. Neither sweating nor purgation is helpful.

Glomerular nephritis comes on suddenly. Uremic symptoms may appear early. Edema is very slight. There may be urinary suppression or profuse diuresis at the start, but the amount is usually within normal limits. Albumin is not excessive and casts are few. The urine is "smoky" from the presence of red blood cells. The blood pressure is usually high and there are changes in the eye grounds. Nonprotein nitrogen and urea are retained in the blood and acidosis and uremia are common. Infection is usually due to a streptococcus and may occur anywhere in the body, especially in the tonsils or adenoids.

In the treatment the protein in the diet should be kept low (1 to 2 Grams per kilo per day, or less), limiting especially the vegetable proteins. If there is much blood in the urine the diet should be solely milk. Arrowroot starch is good because it carries little protein. Water may be taken freely but salts must be limited. Alkalies and diuretics are contraindicated. Intravenous

injections of 20-percent dextrose (glucose) solution is of value, especially in uremia.

In order that any treatment may produce satisfactory results, in either form of nephritis, the source of infection must be identified and treated, for the symptoms can not be cleared up while toxic absorption continues.

COCAINE UNSAFE IN THE URETHRA

Lewis (*J. of Urol.*, Nov., 1924) is among those who consider it perilous to use cocaine for anesthetizing the urethra. As ordinarily used there is bound to be considerable absorption of the anesthetic into the general circulation, particularly at the point where a lesion exists.

He has therefore turned to other and safer agents and at the present time is using procaine. Cocaine, admittedly, has a more intense action but procaine, he finds, is sufficiently effective in the large majority of cases.

Results depend largely upon the method of using the anesthetic, whether cocaine or procaine. Lewis decries the filling of the urethral canal with an anesthetic solution, which to him appears unnecessary, and uses what might be called the tablet placement method. For instrumentation of the anterior urethra, for instance, he applies a 1-grain procaine tablet precisely at the point in the urethra which is to be anesthetized.

He believes the method, after an experience of 26 years, to be the safest of all methods for producing local urethral anesthesia. For cystoscopy in the male the point of election is the posterior urethra, just past the external sphincter. The means of depositing the tablets is furnished by a very simple little instrument, a urethral tablet depositor, made by the Wm. A. Phillips Surgical Instrument Co., 922 Pine St., St. Louis, Mo. The method is used for all urethral instrumentations that are liable to cause pain, including dilatations, deep endoscopies, cystoscopies, deep urethral soundings, meatotomies, fulgurations in the urethra or bladder, litholapaxies, etc.

The instrument referred to consists of a sheath and an obturator. With its obturator in place, the depositor is introduced to the desired point, the obturator is withdrawn, the tablet inserted into the funnel-shaped opening and pushed through the tube. The tablet is permitted to dissolve in the mucus of the urethra for a half-minute or so, when by to and fro motions of the depositor the semi-liquid mass of tablet is smeared over the adjacent membrane. If one of two tablets are not enough to produce the desired effect, as determined by the patient himself, an additional one or two may be used, after which the cystoscopy or instrumentation may be proceeded with.

In supersensitive cases, in which, for instance the introduction of even a soft rubber catheter cannot be borne, 10 minims

or so of 5-percent procaine solution may be injected with a deep urethral syringe, depositing the fluid along the urethra as the syringe is withdrawn. Of course the capacious might say that this in itself furnishes the anesthesia; but it does not. It supplies only enough anesthesia to reduce the super-sensitiveness to reasonable proportions, after which the depositor does the rest. If the sensitiveness of the patient is so great that even these measures do not suffice, caudal anesthesia or preliminary hyoscine "twilight sleep" may be resorted to; but this is seldom necessary.

EPHEDRINE IN ASTHMA

After using ephedrine in a series of 20 cases of asthma, Dr. William S. Thomas, of New York, reports his opinion of its value, in *Am. J. Med. Sc.* for May, 1926, as follows:

Ephedrine administered by mouth to a series of 20 patients, suffering from asthma, has given relief to all but 3 and is an important substitute for epinephrin as a palliative remedy. In certain respects and in certain cases the newer drug is to be preferred.

In certain asthmatic patients for whom no means of permanent relief has been found, the drug has been used in regularly continued dosage with the result of keeping them asthma-free during the period of its administration.

Its advantages over epinephrin include: (1) The fact that it is effectual when given by mouth; (2) the fact that its effects are more prolonged than those of epinephrin; (3) the absence, in most cases, of tremor and palpitation as by-effects of doses sufficient to relieve bronchospasm.

Among its disadvantages as compared with epinephrin are: (1) Its occasional failure to relieve asthmatic symptoms where the older drug does relieve; (2) By-effects, occasionally met with, which then render its use impracticable even though it relieve the bronchospasm. (It is possible that these ill-effects may be nullified by proper means); (3) When given by mouth, its effects are, of course, less rapidly produced than are those of epinephrin given hypodermically. Ephedrine, however, may also be given subcutaneously.

THE PROBLEM OF ACIDOSIS

Acidosis in children is a manifestation of faulty fat metabolism and hence is most frequently encountered in those about nine months to three years of age—a period when mothers, in their anxiety to fatten their children, force upon them, in addition to their milk supply, an excessive quantity of fat-containing foods. When the abominable fad of top-milk feeding was in vogue, acidosis was quite common among much younger infants.

Dr. Herman B. Sheffield, in *M. J. & Rec.* for November 19, 1924, remarks that, while the onset of acidosis is generally sudden, with explosive vomiting, rise of temperature, anuria and drowsiness, careful watching generally shows that the actual acidosis attack is preceded by habitual anorexia and tendency to nausea and occasional vomiting, particularly in the morning after partaking of milk. It is especially during this prodromic stage that an acute attack is precipitated by the advent of another disease, such as tonsillitis, influenza or pyelitis, thus explaining the erroneous assumption that acidosis may occur in epidemic form.

The diagnosis of acidosis is readily confirmed at the bedside by the finding of acetone-bodies in the urine and by other well known tests where laboratory facilities are at hand. But I wish to call particular attention to a clinical observation that has for years served me as a true diagnostic guide, namely: the acidosis patients, while violently vomiting fluids, almost invariably tolerate solid foods, such as crackers, sweetened biscuits, or palatable cereal pastes without milk. This symptom has proved to me so pathognomonic of acidosis that it has often enabled me to make a positive differential diagnosis between cases of vomiting accompanying acidosis and those of appendicitis, intussusception, poliomyelitis, and similar conditions, in which latter diseases the patients usually vomit everything—solids as well as fluids.

Furthermore, profiting by this experience, I have found it no longer necessary to starve the acidosis patients but, on the contrary, direct that small portions of the aforementioned solid foods be given to them. I also find it advantageous to give bicarbonate of soda, mixed with granulated sugar, in dry form, instead of in solution, when it usually is promptly ejected. In this manner, especially with the aid of a few enemas of sodium bicarbonate (half an ounce to a pint) the acidosis is rapidly controlled.

The regular diet, more especially milk or fats, is not resumed until every trace of nausea has subsided and the urine has become entirely free from acetone. Even then only skimmed milk is allowed for several weeks thereafter. Where the acidosis persists, enemas of glucose solutions (one ounce to a pint), three times a day, are of signal benefit and, when the case is seen late or is grave in character, the alkalis and the glucose are best given continuously by Murphy drip or intravenously.

HEMOSTATIC POWER OF CEANOTHYN

The bark of the root of the shrub *Ceanothus americanus* yields an extract which, for the last fifty years, has been known to have marked hemostatic properties. It remained for A. H. Clark (1926) to show that this peculiar property was

due to the presence of two unknown alkaloïds. It is now prepared in standardized form and marketed under the trade name of Ceanothyn, by Flint Eaton & Co., of Decatur.

Nothing was known concerning the underlying cause of this specific action of this drug. It is therefore of interest to note the salient facts as brought out by Dr. C. E. Tharaldsen in the *A. J. of Physiology* for February, 1927.

Preliminary tests for clotting time were made on 40 normal individuals (dose 4 fluid drams, administered orally); clotting time was tested by the method of Cecil immediately before and 45 minutes after administering average reduction in clotting time was 41 percent.

The whole blood and plasma of ten individuals was analyzed, before and after administering, for K, Na, Mg, Ca, sugar and N₂ (nitrogen). While changes in the concentration of the blood constituents were noted, these were not sufficiently great to cause a deviation sufficient to be indicative in normal individuals. A slight rise in the sugar concentration is due to the presence of ingredients in the commercial preparation. No noticeable change was affected in the concentration of urea, uric acid or kreatin. It is apparent that the function of ceanothyn dose not affect the concentration of the above constituents of the blood.

A noticeable reduction in clotting time becomes apparent in from 10 to 15 minutes and reaches its maximum in from 45 minutes to one hour. The comparison of clotting time and dosage shows that there is a gradual decrease in clotting time with increase of dosage up to 6 or 8 fluid drams. Above this amount there is no further noticeable change. It does not induce

intravenous clotting administered in any quantity.

Tests made on shed blood, independent of tissue contact, simultaneously with that which had contact with body tissues, showed that the drug accelerated the clotting of blood independent of tissues or digestion, though not so marked as otherwise. The results indicate that the active principle does not undergo a change in the digestive process.

Experiments with pure fibrinogen of dog's blood showed that the active principle does not cause the soluble fibrinogen to change to the insoluble fibrin nor does it accelerate the action of thrombin in accomplishing this change.

The role of calcium in clotting is in the conversion of prothrombin to thrombin. Experiments devised to test the possible influence of ceanothyn on this process were all negative. It plays no part in the conversion, either by replacing or accelerating the action of calcium.

Further experiments performed to determine if ceanothyn might play a role in neutralizing the antithrombin or accelerating the action of thromboplastin showed that it did accelerate the action of thromboplastin but that it was not a substitute for it. Its action is therefore not due to a direct neutralization of the inhibiting action of antithrombin but to the fact that in some way it aids the thromboplastin in accomplishing this result.

These facts are of direct clinical interest in that they offer an explanation of why this peculiarly effective hemostatic is effective whether administered orally, injected subcutaneously or applied to wounded surfaces, and why it will not induce intravenous clotting.

C. E. T.



New Books

FISK & CRAWFORD: PERIODIC HEALTH EXAMINATIONS

HOW TO MAKE THE PERIODIC HEALTH EXAMINATION. A Manual of Procedure. By Eugene Lyman Fisk, M.D. and J. Ramser Crawford, M.D. New York: The Macmillan Company. 1927. Price \$4.00.

We have been talking a great deal, of late, about the necessity incumbent upon physicians to prepare themselves for making periodic health examinations. Many articles on the subject have appeared in the medical journals, but there has been no manual of regular procedure for this work. Here it is!

With the collaboration of specialists in all lines and of the life insurance people (who, with the exception of the Army, have been the only real specialists in physical examinations of the apparently healthy), the authors have brought under one cover all the information which any intelligent physician needs to enable him to make an adequate and informing physical examination.

Full details are given for taking a complete history which will mean something, and the necessary armamentarium for making the general examination is described and illustrated.

The second section deals with the regional examination, and considers the details of examining the mouth; the nose, throat and ear; the eye; the circulatory system; the respiratory system; the abdomen and gastrointestinal system; the osseous system; the nervous system; the endocrine system; the skin; hernia; the urological system; gynecology; the anus and rectum.

The third section gives the indications for special laboratory tests with their technic and standards of interpretation—the last a very important and valuable matter.

The fourth division tells you what to tell the patient and what advice to give him, with regard to general hygiene, food, exercise, tea, coffee, tobacco, etc. This is enormously helpful.

Photographs and diagrams illustrate special procedures and standard forms for recording the results of the examination are shown in the body of the book and in the appendix.

The volume is well and substantially made and printed from clear type on good paper.

We can not too strongly recommend this book to every physician who has occasion to make periodic or life insurance examinations or, in fact, to make general physical examination for any purpose whatever. The study and practice of its teachings by every doctor in the country would do more to put

a crimp in the "irregulars" than would any other one thing we know of.

RICHARDSON: PARENTHOOD

PARENTHOOD AND THE NEWER PSYCHOLOGY. Being the Application of Old Principles in a New Guise to the Problems of Parents and Their Children. By Frank Howard Richardson, A.B., M.D., New York and London: G. P. Putnam's Sons. 1926. Price \$1.75.

The libraries are full of books on "practical psychology," but few of the authors have attempted to apply these teachings to the relations between parents and children.

Dr. Richardson has approached his task with the idea that his suggestions must be so simple that any parent can understand them, free from technicalities and dealing with practical matters. He has succeeded in his attempt with uncommon but admirable completeness. The book holds the attention like a novel.

Among the chapter headings are: Love; Arrested Development; Imitation; Fantasy versus Reality; Disciplining a Child; etc. Every chapter contains sound, sane, reasonable advice and comments which cannot fail to be helpful to any right-minded parent who reads them.

Dr. Richardson is a practising physician, and he writes in much the same way that he would talk with his patients in the consulting room. In nontechnical language, he presents his facts and his advice with conciseness and lucidity. He maintains that the first necessary step in helping modern parents to deal with modern children is the reeducation of the parents themselves; and he approaches his task from this fundamental viewpoint. Without overemphasizing the importance of sex, he has not neglected this difficult factor in the life of the child. Above all, he leaves his readers with the conviction that it is advisable and really easy to apply the teachings of modern psychology to juvenile problems.

HIRSCHMAN: DISEASES OF THE RECTUM

HANDBOOK OF DISEASES OF THE RECTUM. By Louis J. Hirschman, M.D., F.A.C.S. Illustrated. Fourth Edition Revised and Rewritten. St. Louis: The C. V. Mosby Co. 1926. Price \$6.50.

With the advent of local anesthesia the treatment of rectal diseases has come within the field of the general practitioner and it behooves him to familiarize himself with recent developments in this field.

The author has set out to discuss only such diagnostic and operative procedures as

can be carried out in the office. He devotes much space and attention to the importance and technic of ano-rectal diagnosis, and this is good. The discussion of local and sacral anesthesia is also very complete and detailed. Excellent illustrations are used freely and are helpful. Many of these are roentgenograms of abnormalities of the colon. The chapters on dysentery and examination of the stools are valuable.

In connection with the treatment of hemorrhoids, Dr. Hirschman appears to have no particular respect for the injection method, and the use of electrocoagulation in rectal work is scarcely mentioned. On the other hand, he goes into full details of the more elaborate surgical removal of hemorrhoids, with many illustrations of technic.

This is a valuable book for the practitioner, but we do not recommend it to those who can or will purchase only one volume on proctology. Some parts of the work are well and thoroughly covered, but there are many things which should be known to the country doctor who wants to handle his own rectal cases, which have been omitted or passed over lightly.

ROBINSON: WOMAN

WOMAN, HER SEX AND LOVE LIFE. By William J. Robinson, M.D. Illustrated. Fifteenth Edition. New York: Eugenics Publishing Co. 1927. Price \$3.00.

The author of this volume feels that, for a number of reasons, the instruction of girls in sex matters is of even greater importance than similar instruction for boys, and in this volume he has set out to give them such teaching, in simple, frank and understandable language, free from prudery or prurience.

Several chapters deal with the anatomy and physiology of the female sex organs and with the mechanism, hygiene and disorders of menstruation, pregnancy and lactation. Other chapters discuss the venereal diseases, leucorrhea, masturbation and birth control.

The most important and valuable chapters in the book are those dealing with the intimate details of relations—sexual and others—between men and women and giving clear and specific directions as to how those relations may be made mutually satisfying and delightful to both. Material such as this is too frequently left wholly to the imagination, with the result that most couples enter the marriage relation with no knowledge of any standards of technic—nor even that there are such standards.

Dr. Robinson says truly that in the love life there are no "little things." Domestic distress or tragedy may be based upon circumstances which, to the thoughtless, may seem positively insignificant. But our psychic experiences are frequently conditioned by what may, to an outsider, seem

to be trifles. He might have gone even further into detail, with profit, but, as it is, he has done very well.

This is a book which physicians will want to place in the hands of the parents of adolescent girls and recommend to young wives, actual or prospective, as well as to some of the older women whose domestic—meaning their sexual—affairs are in a precarious state.

The author is a physician who has had a very wide experience as a specialist in sex relations and disorders, and he speaks with such authority regarding many matters which are unknown to many doctors that members of the profession can profit largely from a study of this volume.

ROBINSON: BIRTH CONTROL

BIRTH CONTROL OR THE LIMITATION OF OFFSPRING BY PREVENTION. By William J. Robinson, M.D., Chief of the Department of Genito-Urinary Diseases and Dermatology, Bronx Hospital and Dispensary; Editor of "The Critic and Guide"; etc. With an Introduction by A. Jacobi, M.D., LL.D., Late President of the American Medical Association. Thirtieth Edition. Revised and Enlarged. New York: Eugenics Publishing Co., Inc. 1927. Price \$2.00.

A book on contraception by one of its most prominent and indefatigable American advocates.

Dr. Robinson begins by stating all of the leading arguments against birth control and pointing out their fallacies and lack of truth or reason. He then marshals his arguments in its favor, drawing freely upon his own wide experience.

The book is frankly and avowedly propaganda and is written from that standpoint, but the author has been reasonably temperate in his statements; and even if he were not, we feel that this is an effort in a worthy cause.

Those who are opposed to contraception should read this little book and be converted; those who believe in it will here find ammunition to defend their position. It is worth while, in either case, and all physicians should understand both sides of the argument.

COLEMAN AND COMMINS: PSYCHOLOGY

PSYCHOLOGY, A SIMPLIFICATION. By Loyd Ring Coleman and Saxe Commins. New York: Boni & Liveright. 1927. Price \$3.00.

Believing that psychology has at last emerged as a science, the authors of this book have treated the subject in a new way.

The authors do not follow any school. They have gathered together the findings of each, set them in relation to each other, and simply and compactly have given a vast and valuable body of information.

They know that the discovery of knowledge is a rare adventure; and they have written it in a fresh, narrative spirit that makes reading a pleasure.

The function of psychology is to study and establish the elusive combination of elements which constitute the normal mind. One clue in the search is being followed among the baser materials, the manifestations of abnormality to which the mind is subject.

In this work the various schools of psychology have been classified and grouped, and each chapter covers completely the meaning as well as the leaders of each school. This book is essentially for the general reader, and he will find in this one volume much knowledge in a compact form and intelligently presented.

Physicians in all lines of work—especially general practitioners—will find here material which will assist them in their daily work.

CHOOSING THE SCHOOL OR CAMP

CHOOSING THE SCHOOL. Questions Parents Should Ask when Choosing a School. A School Catechism and a Bibliography on Educational Methods are Included. By Eva v. B. Hansl. New York, N.Y., 353 Fourth Avenue: *Children, The Magazine for Parents*. 1927. Price 10 cents.

CHOOSING THE CAMP. Questions Parents Should Ask when Choosing a Camp. A Camp Catechism and a Bibliography are Included. By Helen L. Kaufmann. New York, N. Y., 353 Fourth Avenue: *Children, The Magazine for Parents*. 1927. Price 10 cents.

Parents who are about to choose a school or summer camp to which to send their children, frequently find themselves wholly uninformed as to the character of the institutions under consideration and entirely lacking in knowledge of the method to be employed in forming a sound judgment in the matter.

These two little pamphlets set forth the essentials of the question so clearly that any parent should be able to work the thing out satisfactorily and find the school or camp exactly suited to the needs of his child or children. There are lists of pertinent questions to be asked about the institutions and adequate bibliographies on the subjects.

Most mothers and fathers, at some time, find themselves in need of the suggestions contained in these pamphlets.

DAS: SCIENCE OF THE EMOTIONS

THE SCIENCE OF THE EMOTIONS. By Bhagavan Das. Third Edition, Revised and Enlarged. India, Adyar, Madras: Theosophical Publishing House. (Through the Theosophical Press, 826 Oakdale Ave., Chicago.) 1924. Price \$3.00.

This is not a very new book, but it is so completely unknown to most physicians that it seems wise to call attention to it.

Interest in the emotions and their workings has grown rapidly of late and all thoughtful people realize that they can and do produce profound effects upon the bodily functions. Whence come the emotions? How are they produced? How can they be directed or controlled? Any man who has a reasonable answer to these questions is entitled to a hearing.

In this book the author has set out to study the emotions as one would study any other phenomena. That his background is metaphysical should prejudice no one against his suggestions if they sound reasonable. Surely, the physical approach to the study of emotional psychology has not produced any startlingly helpful results! Perchance an approach from another angle will be helpful.

He considers the nature of emotion and desire and classifies the simple and complex emotions. The chapters on correspondence and sublimation of the emotions are especially full of meat. Here he quotes eminent authorities to the effect that, while humanity has made great progress in the field of the intellect, moral progress has been practically nil, so that the most highly "civilized" nations are, today, little removed from the moral status of the savage, though our ways for expressing our evil passions are changed and enlarged.

The chapters on emotion in art and in human life and that on the application of the science of the emotions are decidedly practical.

The style is a bit diffuse, at times (the author is an erudite Indian), but most of it is clearly expressed and the logic is well sustained.

None of us knows very much about the emotions, as yet, and any light on the subject should be welcome to all physicians, especially to psychiatrists and general practitioners.

CAWADIAS: INTESTINAL DISEASES

DISEASES OF THE INTESTINES. By A. P. Cawadias. New York: William Wood & Co. 1927. Price \$6.00.

The author takes as a basis for this excellent volume the idea that there are no diseases, but only diseased individuals. Individual resistance is as important a factor in etiology as are external agents of various sorts.

He has made the *syndrome* the basis of his discussions—not the "symptom complex," but the group of symptoms considered in relation to the causative lesions. Ulcerative colitis is a syndrome; *amebic* ulcerative colitis is a disease. If the syndrome is once described one need not repeat it in discussing the effects of the ameba, Shiga's dysentery bacillus, *Balantidium coli*, etc., but merely list the differences caused by the various infecting organisms.

Great stress is laid upon pathologic physiology and clinical diagnosis. Cawadias feels that laboratory methods are useless

unless indicated by the physical examination and history and studied in their light. Schematic drawings and tables are used to good effect.

The first chapter deals with the medical anatomy of the intestines (a happy thought) and the second with intestinal dyspepsia. The other 20 chapters are grouped under diffuse and localized inflammatory syndromes, motor syndromes, vascular syndromes and special syndromes and diseases—an arrangement which greatly facilitates efficient study.

The book is devoid of padding and is mechanically satisfactory in all particulars. It includes an adequate bibliography and a workable index.

All physicians deal with intestinal disorders more or less and all can profit by a sound and practical knowledge of their anatomy, physiology and pathology. Internists and practitioners are especially recommended to add this volume to their libraries and to study it diligently.

FOX: REMINISCENCES

REMINISCENCES. By George Henry Fox, A.M., M.D. New York: Medical Life Press. 1926. Price \$3.50.

When a man reminisces it is desirable that his audience be not only in a reminiscent mood, but more or less familiar with the things recalled and the times in which they happened. For this reason, Dr. Fox's "Reminiscences" will appeal chiefly to those who have "grown grey in the harness." Early days at Balston Spar will not interest very greatly the speeding reader of 1927, and as "the faculty of the U. of P. who were teaching when Dr. Fox matriculated in 1867 are (he says) all dead, present students at that institution of learning, will be quite apt to let them remain that way! To have to deal with a living and ever-present faculty is enough for the average undergrad. However, those who know Dr. Fox and his work in the field of dermatology will undoubtedly enjoy his very well written narrative.

G. H. C.

WESTERMARCK: HISTORY OF MARRIAGE

A SHORT HISTORY OF MARRIAGE. By Edward Westermarck, Ph.D., Hon. LL.D. (Aberdeen), Martin White Professor of Sociology in the University of London. New York: The Macmillan Company. 1926. Price \$3.50.

Dr. Westermarck has based this new book on the fifth edition of his "History of Human Marriage," but it is in no sense an abridgment of the earlier work. He deals here with marriage as a social institution in the strict sense of the term, and has consequently omitted various topics discussed in the larger History.

He holds the view that marriage in some form existed among our earliest hu-

man ancestors, and he describes marriage customs from the earliest times and among many primitive peoples.

The successive chapters deal with the origin of marriage, the frequency of marriage and the marriage age, endogamy (which forbids marriage with anyone outside the group or tribe), exogamy (which forbids marriage with anyone of the same kin or name), marriage by capture, consent as a condition of marriage, marriage by consideration and by the exchange of presents, marriage rites, monogamy and polygyny, polyandry and group marriage, the duration of marriage and the right to dissolve it.

WILDER: DIABETIC PATIENTS

A PRIMER FOR DIABETIC PATIENTS. A Brief Outline of the Treatment of Diabetes with Diet and Insulin. Including Directions and Charts for the Use of Physicians in Planning Diet Prescriptions. By Russell M. Wilder, M.D., Section on Nutrition, Division of Medicine, Mayo Clinic. Third Edition, Reset. Philadelphia and London: W. B. Saunders Company. 1917. Price \$1.50.

This book is intended for the patient and attending physician. The author says, "Experience has proved beyond question that lasting benefit from the treatment of diabetes can only be obtained when the patient is able to cooperate intelligently, that such cooperation demands not only willingness on the part of the patient but also understanding, and that the physician's major task is the imparting of this understanding."

The book consists of 126 pages of text and is divided into twelve sections, treating the following subjects: (1) What Diabetes is and What May Be Expected from Treatment; (2) The Tests for Sugar and Diabetic Acid in the Urine; (3) Weighing Foods; (4) The Fuel Value and Composition of Foods; (5) The Diet; (6) Insulin and Its Use; (7) Complications and their Treatment; (8) Diabetic Acidosis and Coma; (9) Gangrene and Skin Infections; (10) The Planning of Diet Prescriptions (For the Physicians); (11) Recipes; (12) Emergency Diets, Foods Tables, Other Tables.

F. J. H.

HARROW: THE ATOM

THE ROMANCE OF THE ATOM. By Benjamin Harrow. New York: Boni & Liveright. 1927. Price \$1.50.

An attempt is made to describe in non-technical language, but with strict regard for accuracy, the achievements of chemists and physicians in unraveling some of the profound mysteries hidden within the atom.

Life is a chemical reaction. Chemical reactions are based upon reactions between atoms. Much of the mystery within us and surrounding us will be explained with the help of these atoms.

This book deals primarily with the inner structure of the atom, tracing the story from the Middle Ages, when the alchemists worked on the transmutation of base metals into gold, down to the present year, when the transmutation of one element into another is fast becoming a reality. It will be found that as profound a chemical change as can be named depends upon a speck of negative electricity, the electron. The electron is at the heart of every chemical reaction; which means that it is at the very heart of life itself.

Priestley and Lavoisier, the founders of modern chemistry; Dalton and his Atomic Theory; Mendeleeff and his Periodic Law; Crookes, Thomson, Rutherford, Bohr and Millikan and the electron; Rayleigh and Ramsay and the gases of the air; and Lewis and Langmuir and their structure of the atom—these are some of the topics discussed.

The concluding chapters deal with the origin of life, the application of science to everyday life, and the scientist as citizen. The salvation of mankind, in the author's opinion, lies in the application of the scientific method—the method which has made possible the glorious discoveries within the atom—to everyday life.

RICHARDSON: SIMPLIFYING MOTHERHOOD

SIMPLIFYING MOTHERHOOD. Being A Handbook on the Care of the Baby During the First Year. By Frank Howard Richardson, A.B., M.D., Brooklyn, N. Y., Regional Consultant in Diseases of Children to the N. Y. State Department of Health; Chief of Nutrition Class, Brooklyn Hospital; etc. Containing a Chapter on Breast Feeding by Isaac A. Abt, M.D., Professor of Diseases of Children, Northwestern University Medical School. Illustrated. New York & London: G. P. Putnam's Sons. 1925. Price \$1.75.

The author justifies the publication of this book because it "explains how every child may get the benefit that breast-feeding bestows." It is written for the practicing physician, the student of medicine and the mother, in terms which a layman can understand. If it succeeds in increasing the percentage of breast-fed babies the author will, no doubt, feel that his efforts have been justified, and it will have done a service to mankind.

The author states that he has some very definite hobbies. We will class his denunciation of pasteurized milk as that and make no further comment. His claim that a quart of certified milk, taken by the nursing mother, will furnish enough vitamin C for the child cannot be left unchallenged. It is agreed among authorities that, whether the infant is getting certified, pasteurized or plain, raw milk, orange juice or some other product containing vitamin C should form part of the diet. They take no chances on the content of this vitamin in any cow's milk.

Although this reviewer disagrees with some of the author's "hobbies," it is granted that he has written much which will be recognized as true and useful to the practicing physician and to the mother.

F. J. H.

BERMAN: BEHAVIORISM AND "GESTALT"

THE RELIGION CALLED BEHAVIORISM. By Dr. Louis Berman. New York: Boni & Liveright. 1927. Price \$1.75.

Says the author, "Perfect definitions are possible only for the unreal; hence all dictionaries are hospitals for ruptured and crippled ideas."

Then he defines religion as being a self-conscious attitude toward life, which appeals to invisible and intangible powers for help and inspiration and produces an effect on conduct as well as feeling. He feels that behaviorism meets this definition.

In a few very brief chapters he sketches the work of Thorndike and Watson and sets forth the basic ideas they have announced, summarizing them by stating that they believe thinking is merely the movement of certain muscles; purpose is hokum; feeling, elaborated visceral reactions; and imagination and inspiration nothing but the patterns made by a rat running in a maze.

He then proceeds to knock the supports from under such an erection by showing that *consciousness* appears in connection with new types of behavior and is lost as the activities become habitual (hence evidently conditioning the new behavior); and that the workings of the mind are as subject to the rules of deductive evidence as are those of the interior of an automobile.

An important part of the book is the presentation of the "Gestalt" theory of behavior, which seems to be too little known in this Country. This teaching, sometimes called "configurationism," declares, briefly, that no organism ever receives a single, isolated stimulus, but is affected by the "pattern" of the group of stimuli of various kinds which always present themselves simultaneously. These factors in the pattern are always affected by their varying relations to each other and to the observer, so that a change in the pattern ("Gestalt") produces a very real change in the observer. Thus the total dynamic situation in the environment has an individuality of its own and to dislocate any of the parts is to violate the individuality.

On this basis all laboratory experiments in psychology, upon men and animals, are wholly worthless, as they are performed in an unnatural way upon subjects in an abnormal or dislocated environment and the results can never be valid. As behaviorism is almost wholly based on laboratory experiments with animals, "Gestalt" leaves the whole structure hanging in the air without any logical support.

This little book is delightfully written, in a lucid, semi-colloquial and pungent style. The satire is delicious and the logic cool and sound. It is not recommended to those who heartily enjoyed "Gentlemen Prefer Blondes" nor to such as fear ideas. To the thoughtful person who is able and willing to use his mind it will give much joy.

BARBOUR & WATSON: GYNECOLOGIC DIAGNOSIS

GYNECOLOGICAL DIAGNOSIS AND PATHOLOGY. By A. H. F. Barbour, M.D., LL.D., F.R.C.P. Formerly Lecturer on Gynecology University of Edinburgh, and B. P. Watson, M.D., F.R.C.S. (Ed.) F.A.C.S. Professor of Obstetrics and Gynecology, Columbia University. New York: Wm. Wood and Co. 1927. Price \$4.00.

The third reprinted and improved edition of a small book, which can be said to be the last word in gynecologic pathology. Those serious-minded gynecologists who desire to interpret the lesions they encounter in their operative therapy will find in the 223 pages of this monograph a fund of knowledge. Eight colored plates and 201 illustrations of gross and microscopic specimens represent a pathologic museum. The manner in which gynecologic pathology is presented in this volume merits high praise.

The diagnostic methods here described present nothing specially new, though in many instances one can see the author's ability to cause the examiner to think and not to allow himself to fall into a sort of automatic routine. Yet the reviewer feels that, with due respect for the eminence of the two Scotch surgeons, one of whom has recently been called to fill a chair in our own Columbia University, he is constrained to criticize the section dealing with the use of the uterine sound as a means of determining the length of the uterus in relation to tumors.

The sound is a dangerous instrument and gynecologists are too often trapped into its use when it is contraindicated, morally and legally, and while the eminent authors have pointed out the fact that the indications for its use are restricted, it would have been better to condemn it entirely. Likewise the section on the use of the curette, which is well described, should have contained an admonition to first exclude bacterial and especially gonococcal infection of the uterine cavity, as the curette has been responsible of starting all sorts of mischief in certain latent infections.

With these exceptions, we feel under obligation to the publisher for having given the American medical profession a highly scientific yet practical monograph on a phase of gynecology which, unfortunately, is being treated in step-motherly fashion by too many gynecologic surgeons. No one who practices gynecology can afford to miss thoroughly studying this comparatively small volume.

G. M. B.

BENSUSAN: GERMAN SPAS

SOME GERMAN SPAS: A Holiday Record. By S. L. Bensusan. London, W.C. 1, 38 Great Ormond Street: Noel Douglas. 1926. Price \$1.50.

This book comes to us from Dr. A. N. Apelmann, of the German Health Resorts. It is written as a pleasant travel narrative by a Britisher who has been a patient at these watering places. He tells of their therapeutic procedures, expense, accommodations and willingness to accept patients from abroad. If you prescribe Spa treatment or are interested in it, you will want this informative and beautifully illustrated volume for yourself and your patients.

H. C. S.

GRIJNS: BERIBERI AND AVITAMINOSIS

BEITRÄGE ZUR GESCHICHTE DER ERKENNUNG DER BERIBERI ALS AVITAMINOSE. Von Prof. Dr. G. Grijns, Landbouwhoogeschool Wageningen, Holland. Fortschritte der Naturwissenschaftlichen Forschung. Herausgegeben von Prof. Dr. Emil Abderhalden-Halle A. S., Neue Folge, Heft 1. Berlin, N. Friedrichstrasse 105 B: Urban & Schwarzenberg. 1927. Price, Mk. 3.

CAMPBELL & DETWILLER: LAZY COLON

THE LAZY COLON. Newer Methods and Latest Advances of Science in the Treatment of Constipation. By Charles M. Campbell; Associated with Albert K. Detwiler, M.D. Third Revised Edition. New York: The Educational Press, 116-120 West 32nd Street. 1926. Price \$2.50.

Intestinal disorders have been called "the mother of diseases," and it is undoubtedly true that a very large number of our population over 25 years old (some say 90 percent) suffer more or less severely and persistently from constipation.

In this volume the authors have essayed to translate into the language of the layman the vast mass of pertinent and valuable information relative to the digestive canal, its physiology and disorders, which has developed during the past ten years. They have quoted their authorities, told why they are considered authorities, defined all technical words used (in the text) and added certain observations of their own.

The pro and con of drinking water with meals; causes of constipation; theories and results of intestinal poisoning; the use and abuse of purgatives; vitamins; the use of enemas; the coated tongue; and many other vitally important matters are rather fully discussed, without any bias or prejudice and without attempting to exploit any fad or cult.

The type is rather closely set and without subheads, which makes it a bit difficult to read without fatigue. This may have been necessary in order to put as much informa-

tion as possible in a compact and readily handled volume. Line drawings and half-tones illustrate the text where required for clarity. The index is adequate.

This is a valuable book for those who are sufficiently interested in living long and well to give the matter earnest study and to make some real efforts in practice. It is more authoritative and reasonable than are most books of the sort, and the points made are, in general, clearly and practically stated, so that physicians who have given no especial attention to these matters, as well as laymen, will find many interesting and practical suggestions.

WALKER: ENLARGED PROSTATE

THE ENLARGED PROSTATE. By Kenneth M. Walker, F.R.C.S., M.A., M.B., B.C., Hunterian Professor, Royal College of Surgeons, 1911, 1922, 1924, etc. Oxford University Press, London and New York. 1926. Price, \$4.00.

This is another monograph of the well known Oxford Medical Publications, of about 200 pages of text, one frontispiece in colors and 59 illustrations, which, as the title implies, restricts itself to the diagnosis and treatment of the enlarged prostate.

The chapters on the anatomy physiology and pathology are well written, brief and lucid. The chapter on cystoscopy is handled in a little more than seven pages and therefore merely sketches the technic. The various operations and the after-care are discussed in an impartial yet critical manner and certainly bring the subjects up to date.

A chapter on prostatism, that is to say symptoms of prostatic hypertrophy without the presence of hypertrophy of the gland, presents the pros and cons expressed by leading authorities without the author taking positive sides with any one. It is refreshing to note that the author rejects the old-fashioned "punch" operation and replaces it by a diathermy punch, which, however, is a rather complicated instrument and doubtless no more effective than a similar instrument made for the reviewer in Chicago, so that American surgeons do not need to send to England for this appliance. Thirty cases of prostatic hypertrophy are tabulated showing 3 deaths and the rest cured or improved.

While there are larger monographs on this subject, the present volume has the superiority of brevity—a factor of great importance with busy practitioners who desire to inform themselves on the latest advances in surgery. The value of the work

is enhanced by a good bibliography, enabling the studious reader to secure detailed information on any desired phase of the problem. The monograph merits great popularity.

G. M. B.

JACOBSON: GENIUS AND DRUGS

GENIUS, SOME REEVALUATIONS. By Arthur C. Jacobson. New York: An Adelphi Publication. Greenberg, Publishers. Price \$2.50.

In this interesting volume the author has set out to demonstrate that most of the world's creative genius, in the fields of art and literature, has been the result of the effects of drugs or disease or both.

He musters his facts in impressive array, and there can be little doubt of their validity; but we must remember that facts do not necessarily constitute the truth. Robert Burns, Poe, Shakespeare, Guy de Maupassant and a host of others were, no doubt, free imbibers of alcoholic beverages; De Quincey was an opium addict; Stevenson was tuberculous. All these matters are facts but no man is in a position to determine the truth as to what relation toxemia had to the genius of these persons.

The book is cleverly written, in a pleasing and cock-sure style, and if one is careful not to take its pronouncements too seriously, an hour or two may be spent very pleasantly in studying the psychologic processes of the author, as well as of the personages whom he depicts so vividly.

ABDERHALDEN: BIOLOGIC LABORATORY TECHNIC

HANDBUCH DER BIOLOGISCHEN ARBEITSMETHODEN. Unter Mitarbeit von über 600 bedeutenden Fachmännern herausgegeben von Geh. Med.-Rat Prof. Dr. Emil Abderhalden, Direktor des Physiologischen Institutes der Universität Halle a. d. Saale. Lfgs. 228-230.

Abt. V, Methoden zum Studium der Funktionen der einzelnen Organe des tierischen Organismus, Teil 1, Heft 4, Price, Mk. 14.

Abt. V, Methoden zum Studium der Funktionen der einzelnen Organe des tierischen Organismus, Teil 4, Heft 9 (Schluss). Price, Mk. 6.60.

Abt. VIII, Methoden der experimentellen morphologischen Forschung, Teil 2, Heft 4. Price, Mk. 8.40.

Berlin N 24, Friedrichstrasse 105 B: Urban & Schwarzenberg. 1927.

Medical News



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NEW YORK'S NEW MEDICAL CENTER

New York's new skyscraper medical center is becoming an accomplished fact. The great central building is completed and others are in process of construction.

Originally intended to house the College of Physicians and Surgeons of Columbia University and the Presbyterian Hospital (with its School of Nursing), the plans now embrace a group including the New York State Psychiatric Institute, the Sloane Hospital for Women, the Babies' Hospital, the Neurological Institute and the Vanderbilt Clinic. Each of these will keep its identity and perform its original functions, but the work will now be centralized and co-ordinated.

The bringing together of all types of cases in connected buildings will offer unexampled clinical opportunities, and the use of one kitchen, laundry, and other utilities will greatly reduce expense.

CHILE HAS A SOCIAL HYGIENE LAW

The Republic of Chile has recently enacted legislation for the control of venereal diseases. The law establishes a Division of Social Hygiene with three departments—Education Control, and Healing. The various functions of this Division are definitely outlined.

The Department of Education is held responsible for special propaganda, for the study of educational programs, for the creation of social hygiene professorships in the medical schools, institutes, and nor-

mal schools, and for suggestions in elementary social hygiene instruction to be included in general public education. The Department of Education is also to direct the control and repression of prostitution, watch over the specialists in venereal diseases, exacting from them the certificate of competence the law requires, and to watch over the practices of public and private laboratories in investigations connected with the bacteriological and serological diagnosis of social diseases.

One of the sections of the Department of Control, the Office of Control of Prostitution, has for its function the control and repression of openly established and secretly practiced prostitution. It also watches over the morals of public resorts. The Office of Professional Control, another section in the same department, has control over the exercise of the practice of surgery as relating to social diseases. It exacts special licenses from physicians and laboratories.

The Department of Healing, through its Central Pharmacy Office, distributes medicines and curative materials to hospitals and clinics. It maintains a manufacturing laboratory for preparations needed by the pharmacies of the service. The same department maintains an Office of Clinical Statistics and an Office of Medical Information. The latter makes available information on medical progress in experimental investigation, diagnosis and treatment of venereal diseases, tuberculosis, alcoholism, physical education, and hygiene of dwellings; also, on progress of the fight against venereal diseases in different towns which distinguish themselves in this field. The formation of libraries and the supplying of magazines indispensable to the service are to be administered by the Office of Libraries and Magazines.

The Social Hygiene Brigades, one for each of the five zones into which the Republic of Chile is divided, have clinics and hospitals for those venereally diseased, degenerates, and tuberculous persons. Provision is also made for Brigade Reformatories to render hospital service for those who have contagious diseases and who have refused treatment and compliance with the law.

The President of the Republic is authorized to incorporate programs of study in social hygiene into the textbooks of all schools. The law also provides a penalty for private schools failing to provide such instruction.

Women practicing prostitution are submitted to medical inspection to verify their pathologic condition. Any prostitute declared to have a venereal disease is confined to a hospital during the period of contagion. Those resisting treatment are sent to a reformatory. Treatment of venereal diseases is obligatory and provided at public expense, except in chronic cases. These are to be cared for by private physicians or charitable institutions authorized to do such work. A strict system of reporting of the venereally diseased by private physicians is inaugurated. Provision is also made for injunction and abatement measures making it possible to close up as a nuisance any building which the owner allows to be used for purposes of prostitution.

Professional or commercial proclamations relating to operations or advertisements of drugs and specifics for curing venereal diseases are not to be accepted for publication in newspapers and magazines, unless endorsed by the Division of Social Hygiene. A medical certificate of good health is required from both men and women before marriage.

SYNTHETIC THYROXIN

Authentic thyroxin has been prepared synthetically by Dr. C. R. Harrington; but as there is little evidence to show that natural thyroxin has any marked advantages over desiccated thyroid substance, as a remedy, this achievement will have little clinical significance until the synthetic thyroxin can be marketed at a lower cost than that of the thyroid substance.

HISTORY OF MEDICINE IN ILLINOIS

The first volume of a "History of Medical Practice in the State of Illinois," written under the auspices of the Illinois State Medical Society, is now ready for delivery. It traces medical events from 1673 up to 1850. The second volume (now in preparation) will bring the record up to the present time.

Medicine in Illinois should be a fair picture of the professional development of the Middle West, so these volumes should have a wide interest and will, no doubt, be a substantial addition to medical history.

The edition is limited and will not be reprinted. Those who are interested should write to the Committee on Medical History, 185 N. Wabash Ave., Chicago, for particulars.

U. S. CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following open competitive examination:

Assistant Medical Officer.

Associate Medical Officer.

Medical Officer.

Senior Medical Officer.

Applications for these positions will be rated as received at Washington, D. C., until December 30, 1927.

The examinations are to fill vacancies occurring in the Indian Service, the Public Health Service, the Coast and Geodetic Survey, the Panama Canal, the veterans' Bureau Field Service, and other branches of the Federal classified service throughout the United States.

Specialists are needed in practically all branches of medicine and surgery. There is especial need for medical officers qualified in tuberculosis or neuropsychiatry.

Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. civil service examiners at the post office or customhouse in any city.

CENTENARY OF LORD LISTER

April 5, 1927, was the hundredth anniversary of the birth of Joseph Lister.

Few of us ever stop to realize how young modern surgery is or to remember that it would have been impossible without Pasteur's contribution of bacteriology, Lister's development of antiseptics and Long's discovery of ether anesthesia.

